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## ATOMIC WEIGHTS.

ABOUT one year ago the Committee of Revision and Publication of the Pharmacopœia of the United States published a table of atomic weights, recalculated, after the then latest researches of leading authorities, by Prof. F. W. Clarke, chief chemist of the United States Geological Survey. The avowed object of the publication was to establish a firm basis to which all analytical data and figures in the Pharmacopœia should be referred. At the same time it was hoped that the values given in that table would be uniformly accepted by chemists, so that the inconsistencies arising from the use of different atomic weights by different chemists might be done away with. There is no question about the propriety, or even necessity, of employing the most accurately determined atomic weights in all scientific investigations. For this very reason the publication of the before-mentioned table was received with approval by a number of leading authorities, such as Prof. C. R. Fresenius, of Wiesbaden; Prof. Charles F. Chandler, of Columbia College, and others. Some time afterwards a critical review of the table by Profs. L. Meyer and K. Seubert appeared in the *Pharmaceutische Rundschau* (April, 1891). The principal objection of the reviewers is directed against the selection of oxygen = 16 as basis of the system, which necessitates the employment of a small fraction to express the atomic weight of hydrogen (viz., 1.007, after Clarke), and slightly displaces many other figures. We shall not repeat here the arguments advanced at that time in favor of one or the other system, but shall restrict ourselves to facts or arguments which have been advanced since then having an important bearing upon the subject.

In the first place, it is well known that analytical operations in technical chemistry—mining and assaying, the alkali and acid industry, pharmaceutical or medical chemicals, aniline and gas works, sanitary and food analysis, etc. (which, after all, comprise the vast majority of chemical operations of direct and practical importance to the public)—are carried on in a decidedly conservative manner, at least in so far that the gravimetric and volumetric methods of assay are based on the values which have long been adopted as standards and quoted as such in the leading analytical handbooks (Fresenius, Rose, Mohr, etc.). In some branches of industrial chemistry it is still customary to use values which are now certainly superseded by more correct ones, but custom has carried the day over scientific accuracy. In most cases, even when the more modern and more accurate figures for atomic weights were adopted, it has been customary to round off the figures at the second or first decimal, or even to round them off to whole numbers (thus: Bromine, 79.76 or 79.8; or 79.95 or 80, etc.). But no matter what set of figures was used, they were all based on hydrogen = 1. And hydrogen, as the lightest gas, also formed the unit for expressing the density of gases, simple and compound.

Careful inquiry has demonstrated the fact that probably all large chemical manufactories use practically the same set of atomic weights for making their volumetric and other test solutions, and that these are practically identical with the values established by the periodical calculations and revisions of Prof. Lothar Meyer (afterwards associated with Prof. K. Seubert). The introduction of a new set of values, as bases of volumetric solutions or other reagents, if it is expected to be successful, must proceed from a representative body of chemists, preferably of an international character, or it must be brought about by government ordinances, at least in those countries in which this is legally possible.

A careful study of all facts bearing upon this subject has shown that, if the Pharmacopœia were to set up a new set of standards—no matter how much more scientifically accurate—for analytical valuations, there would be a constant friction between the manufacturers and the consumers, because each would use a different measure for determining the values; and though such different measures could, by calculation, be shown to be, in most cases, approximately identical, yet such calculation would probably rarely be made, and much annoyance be caused either to the manufacturer or the purchaser. In fact, if the manufacturer and the consumer use, each, separate standards of valuation, both of them will eventually be compelled to keep two different sets of reagents or volumetric solutions on hand, to save themselves the trouble of transcalculating one set of figures into the other.

Under these circumstances, it would appear to be the wisest plan to retain for the present the atomic weights most generally in use by manufacturers and analysts throughout the world, rather than to adopt a new set starting from a different basis. An additional reason why conservatism in this matter is advisable is this, that many chemists have been for some time past, and are at present, actively engaged in revising the atomic weights of many of the elements, thus causing a constant alteration in the relative values, which will, however, eventually result in the establishment of figures trustworthy to a degree beyond the necessities of the practical analyst.

We have just received from Prof. Charles F. Chandler a new "Table of Atomic Masses"—which is a new term proposed for these values, so as to do away with the too concrete term "weight"—containing the figures recalculated by Prof. F. W. Clarke on the basis of publications which have appeared since the preceding revision up to October, 1891. In order to show the variations between

| Name. | Symbol. | 1. Meyer & Seubert, 1891. | 2. Clarke (Dec., '90), recalculated by Meyer & Seubert. | 3. Clarke (Dec., '90). | 4. Clarke (Oct., '91). |
|---|---|---|---|---|---|
| Aluminum | Al | 27.04 | 26.93 | 27.0 | 27.0 |
| Antimony | Sb | 119.6 | 119.7 | 120.0 | 120.0 |
| Arsenic | As | 74.9 | 74.81 | 75.0 | 75.0 |
| Barium | Ba | 136.9 | 136.7 | 137.0 | 137.0 |
| Bismuth | Bi | 208.9 | 208.4 | 208.9 | 208.9 |
| Boron | B | 10.9 | 10.97 | 11.0 | 11.0 |
| Bromine | Br | 79.76 | 79.75 | 79.95 | 79.95 |
| Cadmium | Cd | 111.5 | 111.7 | 112.0 | 112.0 |
| Cæsium | Cs | 132.7 | 132.6 | 132.9 | 132.9 |
| Calcium | Ca | 39.91 | 39.90 | 40.0 | 40.0 |
| Carbon | C | 11.97 | 11.97 | 12.0 | 12.0 |
| Cerium | Ce | 139.9 | 139.9 | 140.2 | 140.2 |
| Chlorine | Cl | 35.37 | 35.36 | 35.45 | 35.45 |
| Chromium | Cr | 52.0 | 51.97 | 52.1 | 52.1 |
| Cobalt | Co | 58.6 | 58.85 | 59.0 | 59.0 |
| Columbium [1] | Cb | 93.7 | 93.76 | 94.0 | 94.0 |
| Copper | Cu | 63.18 | 63.24 | 63 4 | 63.6 |
| Didymium [2] | Di | 142.0 (?) | 141.9 | 142.3 | ..... |
| Erbium | Er | 166.0 (?) | 165.9 | 166.3 | 166.3 |
| Fluorine | F | 19.0 | 18.95 | 19.0 | 19.0 |
| Gadolinium | Gd | ..... | ..... | ..... | 156.1 |
| Gallium | Ga | 69.9 | 68.83 | 69.0 | 69.0 |
| Germanium | Ge | 72.3 | 72.12 | 72.3 | 72.3 |
| Glucinum [2] | Gl | 9.03 | 8.98 | 9.0 | 9.0 |
| Gold | Au | 196.7 | 196.8 | 197.3 | 197.3 |
| Hydrogen | H | 1.0 | 1.0045 | 1.007 | 1.007 |
| Indium | In | 113.6 | 113.4 | 113.7 | 113.7 |
| Iodine | I | 126.53 | 126.53 | 126.85 | 126.85 |
| Iridium | Ir | 192.5 | 192.6 | 193.1 | 193.1 |
| Iron | Fe | 55.88 | 55.86 | 56.0 | 56.0 |
| Lanthanum | La | 138.2 | 137.9 | 138 2 | 138.2 |
| Lead | Pb | 206.4 | 206.43 | 206.95 | 206.95 |
| Lithium | Li | 7.01 | 7.00 | 7.02 | 7.02 |
| Magnesium | Mg | 24.3 | 24.24 | 24.3 | 24.3 |
| Manganese | Mn | 54.8 | 54.86 | 55.0 | 55 0 |
| Mercury | Hg | 199.8 | 199.5 | 200 0 | 200.0 |
| Molybdenum | Mo | 95.9 | 95.76 | 96.0 | 96.0 |
| Neodymium [4] | Nd | ..... | ..... | ..... | 140.5 |
| Nickel | Ni | 58.6 | 58.55 | 58.7 | 58.7 |
| Nitrogen | N | 14.01 | 14.0 | 14.03 | 14.03 |
| Osmium | Os | 190.3 | 191.2 | 191.7 | 190.8 |
| Oxygen | O | 15.96 | 15.96 | 16.0 | 16.0 |
| Palladium | Pd | 106.35 | 106.3 | 106.6 | 106 6 |
| Phosphorus | P | 30.96 | 30.92 | 31.0 | 31.0 |
| Platinum | Pt | 194.3 | 194.5 | 195.0 | 195.0 |
| Potassium | K | 39.03 | 39.01 | 39.11 | 39.11 |
| Praseodymium [5] | Pr | ..... | ..... | ..... | 143.5 |
| Rhodium | Rh | 102.9 | 103.24 | 103.5 | 103.0 |
| Rubidium | Rb | 85.2 | 85.3 | 85.5 | 85.5 |
| Ruthenium | Ru | 101.4 | 101.34 | 101.6 | 101.6 |
| Samarium | Sm | (?) | 149.6 | 150.0 | 150.0 |
| Scandium | Sc | 43.97 | 43.89 | 44.0 | 44.0 |
| Selenium | Se | 78.87 | 78.8 | 79 0 | 79.0 |
| Silicon | Si | 28.3 | 28.33 | 28.4 | 28.4 |
| Silver | Ag | 107 66 | 107.66 | 107.92 | 107.92 |
| Sodium | Na | 23.0 | 22.99 | 23.05 | 23.05 |
| Strontium | Sr | 87.3 | 87.4 | 87 6 | 87.6 |
| Sulphur | S | 31.98 | 31.98 | 32.06 | 32.06 |
| Tantalum | Ta | 182.0 | 182.1 | 182.6 | 182.6 |
| Tellurium | Te | 125.0 | 124.7 | 125.0 | 125.0 |
| Terbium | Tb | (?) | 159.1 | 159.5 | 160.0 |
| Thallium | Tl | 203.7 | 203.67 | 204.18 | 204.18 |
| Thorium | Th | 231.9 | 232.0 | 232.6 | 232.6 |
| Thulium | Tu | ..... | ..... | ..... | 170.7 |
| Tin | Sn | 118.8 | 118.7 | 119.0 | 119.0 |
| Titanium | Ti | 48.0 | 47.88 | 48.0 | 48.0 |
| Tungsten | W | 183.6 | 183.5 | 184.0 | 184.0 |
| Uranium | U | 238.8 | 239.0 | 239.6 | 239.6 |
| Vanadium | V | 51.1 | 51.27 | 51.4 | 51.4 |
| Ytterbium | Yb | 172.6 | 172.6 | 173.0 | 173.0 |
| Yttrium | Yt | 88.9 | 88.9 | 89.1 | 89.1 |
| Zinc | Zn | 65.1 | 65.14 | 65.3 | 65.3 |
| Zirconium | Zr | 90.4 | 90.37 | 90.6 | 90.6 |

[1] Has priority over Niobium [Nb]. [2] Has priority over Beryllium [Be]. [4] and [5] Both formerly comprised under "Didymium" [Di]; see [2].

the several sets of values, we have placed side by side the tables of

1. L. Meyer and K. Seubert (April, 1891).
2. F. W. Clarke (December, 1890), recalculated by L. Meyer and K. Seubert upon the uniform basis of oxygen = 15.96.
3. F. W. Clarke. (This is the table published by the Committee of Revision in December, 1890.)
4. F. W. Clarke, "Table of Atomic Masses, October, 1891."

On examining the fourth table (October, 1891), the only differences from that issued in December, 1890, will be found to be the following:

Didymium is no longer recognized as an element. Its elementary constituents, neodymium and praseodymium, are separately enumerated in the table.

Gadolinium and thulium are now for the first time considered to be entitled to rank as elements.

Osmium is altered from 191.7 to 190.8—Copper from 63.4 to 63.6—Rhodium from 103.5 to 103—and Terbium from 159.5 to 160.

### Asbestos Porcelain.

F. GARROS has obtained a novel porcelain by grinding asbestos to an impalpable powder, removing iron, etc., if necessary, by treatment with hydrochloric acid, making the powder into a paste with water, and baking it in a porcelain furnace for eighteen hours at 1,200°. The porcelain thus produced may be used for the filtration and sterilization of liquids.

The experiments of Drs. Durand-Fardel and Bordas have proved that water containing 1,200 colonies of microbes per cubic centimetre is absolutely sterile after filtration through asbestos porcelain. At the same time it filters more rapidly than ordinary porcelain. Other comparative experiments, made with the co-operation of Cousin and Méran, on the filtration of wines, vinegars, and acids, show that the porcelain may serve equally for the filtration and sterilization of wines, vinegars, etc., and for the filtration of acids.

(This invention must open out a new prospect for the asbestos districts of Canada.)—*Compt. Rend.* and *Chem. News.*

### Salophen,

THE latest suppliant for medical favor, is a salol-like compound, the full name of which is acetyl-para-amidophenol-salicylic ester, otherwise acetyl-para-amido-salol. It has been used in Germany in the treatment of articular rheumatism accompanied by swelling, and in a comparatively short time pain and fever disappeared under daily doses of a drachm to a drachm and a half. It has none of the disadvantages of salol, which are chiefly due to the liberation of phenol in the system. Salophen is a patented product, manufactured at Bayer's Color Works in Elberfeld. Starting with a mixture of equal parts of salicylic acid and paranitrophenol, condensation is first effected through the influence of phosphorus oxychloride, the main product being:

$$C_6H_4\begin{matrix}/OH\\ \backslash COO.C_6H_4.NO_2\end{matrix}$$

This is then reduced in alcoholic solution by tin and hydrochloric acid to amidophenylsalicylic ester, $NH_2$ taking the place of $NO_2$ in the foregoing formula. This product is then acetylated, the result being salophen—

$$C_6H_4\begin{matrix}/OH\\ \backslash COO.C_6H_4N\end{matrix}\begin{matrix}/H\\ \backslash COCH_3\end{matrix}$$

It is crystallized from alcohol or benzol, and occurs in small thin plates, odorless, tasteless, and neutral. It is nearly insoluble in cold, but slightly soluble in hot water, and dissolves readily in alcohol and ether. It dissolves easily and quickly in the cold on the addition of caustic alkali. It melts at 187° to 188° C., and burns with a

smoky flame but without residue. The alcoholic solution behaves like salol towards ferric chloride, giving a yellow precipitate, but no violet color. Dr. F. Goldmann, who communicates these particulars to the *Phar. Zeitung*, states that salophen should be dispensed in powders or compressed tablets made to disintegrate by the addition of starch or starch and sugar of milk.—*Chem. and Drugg.*

### Oil of Lemon.

RECENTLY prepared oil of lemon is a canary-yellow, oily liquid, of a pungent, acrid taste. Its specific gravity is 0.860 at 16° C., and its specific rotatory power $[\alpha]_D$ * at 16° varies from +69.75° to +75.10°. On distilling oil of lemons which has been steam-distilled and dried over fused potassium carbonate, three principal fractions are obtained. The first portion, boiling at 170° to 170.5°, constitutes about $\frac{1}{15}$ part of the whole, and has a specific gravity of 0.8867 at 0° and a specific rotatory power $[\alpha]_D$ = +64.82° at 16°. It is a colorless, mobile liquid, having the characteristic odor of the essence, and has the composition of a terpene, $C_{10}H_{16}$. It is designated limonene.

*Limonene Tetrabromide*, $C_{10}H_{16}Br_4$.—This is obtained when the limonene (1 volume) is dissolved in a mixture of alcohol (4 volumes) and ether (4 volumes), and bromine (0.7 volume) dropped into the solution, cooled to 0°. The product, after washing with cold alcohol and dissolving in boiling ethyl acetate, is obtained as an oil which after a time solidifies to a crystalline mass, melting at 31°. The dihydrochloride, $C_{10}H_{16}Cl_2$, is prepared by passing excess of hydrogen chloride through a mixture of equal weights of ether and the limonene. The ether is evaporated, and the product dried on a porous plate and recrystallized from alcohol. It forms small, colorless, six-sided tables melting at 50°. It agrees in properties with the dihydrochloride prepared by Wallach.

The second fraction from lemon oil boils between 176° and 178°, and includes about $\frac{9}{10}$ of the whole. It is a mobile, colorless liquid, having a specific gravity of 0.8990 at 0° and a specific rotatory power $[\alpha]_D$= +76.75°. Vapor density determinations and analyses show it to have the composition $C_{10}H_{16}$. The tetrabromide, $C_{10}H_{16}Br_4$, prepared as above, melts at 102° to 103°; the dihydrochloride, $C_{10}H_{16}Cl_2$, crystallizes in scales soluble in alcohol, and melts at 50°.

The third fraction boils at 240° to 242°; in fresh lemon oil the proportion is very small, but much larger quantities are obtained from old oil, along with polyterpenes boiling at 250° to 340°. The portion boiling at 240° to 242° consists of a sesquiterpene, $C_{15}H_{24}$. It is a viscous, yellowish liquid, of specific gravity = 0.9847 at 0°, very slowly volatile with steam, and optically inactive. It is soluble in ether and sparingly soluble in alcohol. The tetrabromide, $C_{15}H_{24}Br_4$, is a heavy, colorless oil, which does not solidify at —20°. The dihydrochloride, $C_{15}H_{26}Cl_2$, separates from its cooled alcoholic solution as an oil.

*Detection of Oil of Turpentine as an Adulterant in Oil of Lemon.*—The sophistication of oil of lemon by turpentine oil is difficult to detect, owing to the percentage composition of the two oils being identical and their boiling points and densities being almost the same.

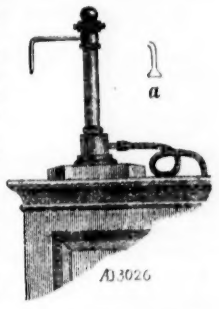
The author finds that the readiest method of detecting the fraud is to observe the specific rotatory power. As the adulterant most frequently employed is *French* turpentine oil, having a specific rotatory power of $[\alpha]_D$ = —27.0° about, its presence in lemon oil having a specific rotation $[\alpha]_D$ =+60.0° is at once betrayed. The amount of the adulterant may be easily calculated, as the rotatory power of the mixture is the algebraic sum of the rotatory powers of its constituents taken in the proportions in which they are present. Even when the adulterant is a dextro-rotatory oil, such as Russian or English turpentine, the change in the rotatory power is so great as to at once betray its presence.

The author gives tables for calculating the percentage of the adulterant present from its rotatory power.—V. OLIVERI in *Gazzetta Chim. Ital.* and *Journ. Chem. Soc.*

* The expression $[\alpha]_D$ means: "Specific rotatory power (right or left), as referred to or based on the line D (sodium line) of the solar spectrum."

### PAPER-BAG OPENER.

IT is an objectionable but by no means uncommon habit of salesmen in drug stores, groceries, confectioneries, etc., to open paper bags, paper envelopes, and similar articles sometimes obstinately refusing to part at the open edges, by blowing against the latter with the mouth. In former times, when the existence of bacteria, bacilli, and infectious germs in general was scarcely known to the public at large, the practice before mentioned did not appear to be as disgusting to the purchasers as it is apt to be at the present time. With a view of substituting for the objectionable "human blast" a mechanical one, several contrivances have been proposed from time to time, among which that shown in the cut, devised by George Krieger, deserves special attention.




This consists of a metallic body, resembling a Bunsen burner, attached to a solid base of marble (or metal). At the top there is a small blowtube bent at right angles, and near the base is attached a rubber tube leading to a small bellows underneath the counter, which need only be touched with the foot to produce a sufficient blast to open the edges of the paper bag held against the blowtube.—After *Pharm. Post.* 3026]

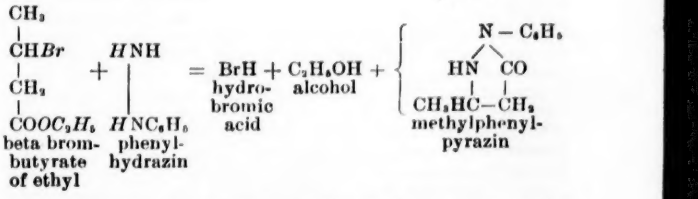
### A NEW STONEWARE FUNNEL.

THE funnel shown in the accompanying cut has been put on the market by C. J. Loetschert & Co., of Hoechst, Germany. It is made of doubly-glazed stoneware, with projecting ridges and numerous holes for the passage of the filtrate. It is suitable for cold or hot filtration, is easily cleaned, and prevents the filtering paper from tearing. Of course it is to be placed inside of a regular funnel with stem. It may be obtained through importers of chemical apparatus. 3024]

### New Process for Preparing Antipyrine.

THE firm of Boehringer, at Waldorf, near Mannheim, has patented a new process for manufacturing antipyrine, or at least the same substance as is known under this proprietary name.

The starting point is butyric acid. A halogen substitution product is first prepared, and from this the ethylic ester. This is made to react with phenylhydrazin, the product being methylphenylpyrazin. The following scheme illustrates this (the groups combining together are printed in italics):




The last-named body is then subjected to weak oxidizing agents and another methyl group introduced, whereby it is converted into dimethylphenylpyrazolon, or antipyrine.

Prof. Michaelis, of Rostock, has thrown some doubt upon the correctness of the above-mentioned reaction and also upon the identity of the product with antipyrine. A report from him is promised to appear shortly. —After *Pharm. Centralhalle.*

### Jamaica Nutmegs.

A GOOD deal of attention is being paid to the propagation of nutmegs in Jamaica. Large quantities of seed nutmegs have recently been imported there from some of the best Grenada estates. One would-be cultivator has already ordered 10,000 young plants from the Government gardens, and another, 5,000.

The trees usually yield their first crop when nine years old, and continue to bear for seventy or eighty years. The crop depends largely upon the amount of care bestowed upon the tree, the average in the West Indies being 10 pounds of nutmegs and 1 pound of mace every year, but from well-manured trees ten times that quantity has been obtained. A Grenada planter writes as follows to the manager of the Jamaica Horticultural Gardens :

The mode adopted here for preparing nutmegs for the London market is very simple. The nutmegs are picked up from under the trees daily and brought into the boucan, where the mace is peeled off and pressed flat between heavy blocks of wood, where it is left for two or three days, then put into a case and left till it reaches the proper color. The nutmegs are put into receptacles (with fine-wire-mesh bottoms, so that the air can pass) inside the boucan, and left there for three weeks or a month until the nut begins to shake inside the shell. They are then shown the sun for a couple of hours a day for two or three days. After this they are cracked. Great care is necessary here, for if the outside shell is struck too hard it makes a black spot in the nutmeg which affects the value considerably. When cracked the nuts are sorted according to size, put into ordinary flour barrels, and shipped. By last mail the average of my prices was about 2*s.* 6½*d.* a pound. In the shipment was included a case of pure rubbish—small, shrivelled, worm-eaten nuts, fetching about 1*s.* a pound.—*Chem. and Drugg.*

### Manufacture of Lactic Acid.

A WORT is made by mashing malt at 50° C. and completing the exhaustion at successive temperatures of 60°, 63°, and 65° C.; finally the wort is boiled, cooled to 45° C., and a carbonate is added with the pure lactic ferment. Pure cultivations of the latter are made in barley wort to which calcium carbonate is added. The fermentation is carried on in vessels which are maintained at 45° by means of steam coils or hot-water pipes. The vessel should either be hermetically closed and furnished with a gas siphon, or covered with a double cloth in order to allow the escape of carbonic anhydride and prevent entrance of dust; a tube is also arranged by which filtered air is introduced to the base of the vessel once or twice during the day in order to agitate the liquor. The fermentation is complete after a lapse of five or six days. The resulting solution of calcium lactate is freed from nitrogenous matters by the addition of tannic acid or of a tannin extract, and crystalline calcium lactate is obtained on evaporation of the filtrate.—G. JACQUEMIN in *Bull. Soc. Chim.* and *J. Chem. Soc.*

### The Coloring of Preserved Vegetables.

THE time-honored method of imparting a beautiful green color to preserved foods consists in treating the articles to be colored with a solution of copper sulphate, which is quickly poured off and the last traces removed by repeatedly washing with water; the preserved articles are then boiled and the vessels containing them soldered up. The coloration results from the formation of the copper salt of an acid derived from phyllocyanin. This body is very inert, is insoluble in water, hydrochloric acid, and acetic acid, soluble in alcohol, and indifferent to the action of light. As the quantity is quite small—only a few milligrammes in 100 Gm.—Prof. Tschirch (from whose paper this is abstracted, after the *Analyst*) is disposed to tolerate the practice.

In another paper, published in the *Schweiz. Wochensch. d. Pharm.*, the same author speaks of the method of preserving the natural green color of vegetables. The green coloring matter of leaves, etc., is extremely sensitive both to light and to acids of every kind. In order to hinder its decolorization, sodium carbonate is commonly added to green vegetables before cooking, by which treatment free acids are neutralized, and also such salts as potassium acid oxalate. Not only is the action of the acids upon the chlorophyll thus prevented, but a relatively stable sodium salt, green in color, is formed, enhancing the effect.

### What Iron Preparations are the Best, Therapeutically?

AN exhaustive study of the fate which iron preparations undergo in their passage through the human organism, conducted by B. Rosen, N. Damskin, J. Kumberg, Chr. Busch, and Eug. Stender, under the direction of Prof. R. Kobert, of Dorpat, has established a series of important facts, heretofore unknown or imperfectly known, which are likely to have much influence upon practical therapeutics. We quote the following after the summary from the pen of Prof. Kobert (in "Arbeiten des pharmakolog. Instituts zu Dorpat," vii., 8vo, Stuttgart, 1891, page 123):

1. *Excretion of Iron.*—The presence of iron in filtered or unfiltered urine can always be demonstrated and its quantity can be estimated.

Abstinence from food does not stop the excretion of iron through the urine.

2. *Estimation of Iron.*—The only practical method is to estimate the iron, in the properly prepared extract from the mineral residue of a known quantity of urine, volumetrically.

3. *Condition of Iron in the Urine.*—Iron exists in the unfiltered urine in combination with the morphotic elements of normal or pathological urine, and also in solution in such combination that it escapes reaction. This combination is so persistent that it resists destruction even by hydrochloric acid and potassium chlorate.

4. *Amount of Iron Excreted.*—The amount of iron excreted in human urine during twenty-four hours amounts, on an average, to scarcely a *milligramme* (the figures given by others are incorrect), but the variation is considerable.

5. *Resorption of Iron.*—The internal administration of saccharated carbonate of iron, or citrate of iron, in doses of over 100 Mgm. (about 1½ grains) per day, scarcely affects the amount of iron excreted. Inunction in the skin is without any effect. It is, therefore, impossible to show that the above preparations are absorbed at all. Experiments on animals (by Kunkel) are not altogether conclusive for man. Nevertheless it is not denied that they may be useful in chlorosis.

6. *Best Form of Iron for Internal Use.*—The best, or at least most rational, form of iron for internal use is that which can actually be shown to have been absorbed, from the fact of its being excreted in the urine, not immediately, but after some time, eventually after several days, and which is found in the urine, not in its unchanged form, but in the peculiar, intimate combination with urinary constituents.

Busch proved that both pure hæmoglobin and impure hæmatin (that is, hæmatin contaminated with blood serum) are surely resorbed, even when given in small quantities. About 17 per cent of the former and 10 to 16 per cent of the latter gradually appeared in the urine again. Prof. Kobert found that solutions of blood and pure hæmoglobin are converted, in contact with intestinal cells, into a body similar to, but not identical with, hæmatin (on which subject he will report elsewhere), and he strove to find a method of effecting this outside of the body, so as to convert the iron constituents of the blood in advance into a form in which they would be more readily and completely absorbed. This he succeeded in doing by *reducing the iron constituents with pyrogallic acid.* The result was that 21.6 per cent of the new product thus prepared and administered was excreted through the urine in the course of several days, which showed that it had been absorbed.

Since the process of preparing this new product involves the use of reagents and operations which, if not carefully applied, are apt to produce poisonous substances, Prof. Kobert has entrusted its preparation to E. Merck, of Darmstadt. It will appear on the market in two forms. One of them is prepared by using zinc as a reducing agent, while the other is reduced by pyrogallic acid. They will be called, respectively, *hemol* and

*hemogallol* [hæmol, hæmogallol]. The form in which they will appear is a chocolate, to be eaten raw. Each tablet corresponds to 1 Mgm of iron. Dose per day, 10 to 12 tablets.

### Solubility of Iodine in Chloroform.

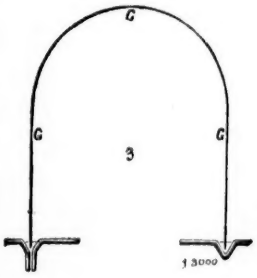
At a recent evening meeting of the Pharmaceutical Society, held at Edinburgh, Mr. W. Duncan read the following paper:

Some time ago I had occasion to prepare a solution of iodine in chloroform. The difficulty I had in getting the required amount into solution brought to my recollection a remark of one of my students, to the effect that he had found it impossible to make a solution stronger than about 1 gr. of iodine in each drachm of chloroform.

On referring to standard works, I found that, with one exception, those which refer to the point state that iodine is freely soluble in chloroform. The exception is Squire's "Companion," in which the solubility is given as 1 in 25. I have utterly failed to obtain a solution of this strength, and, for my own satisfaction, have lately made some experiments to clear up the point.

Commercial iodine was taken, mixed with one-quarter of its weight of potassium iodide, and carefully sublimed. The sublimate was cooled, powdered, and placed in a desiccator to remove any trace of moisture. This chemically pure iodine was then macerated in chloroform for four days, the temperature remaining nearly constant at 10° C. and the mixture being frequently shaken. Iodine being very volatile, the only methods of estimation possible were either gravimetric, as argentic iodide, or volumetric. The latter method was chosen on account of the comparative ease and rapidity of the process, and if care be taken to have the thiosulphate of sodium solution correct, it is quite as accurate as a gravimetric estimation. The result of a large number of estimations carefully made shows that at 10° C. chloroform dissolves only 1.77 per cent of its weight of iodine; or, to put it differently, the solubility of iodine in chloroform is 1 in 56.6. I may say that my results with a solution in which the two have been in contact for two months are practically the same as the foregoing.

Fig. 2.




While working at the subject I found it was absolutely necessary, to get good results, that, after weighing, the chloroform solution should be diluted with a little alcohol before adding the water, as otherwise the iodine would be thrown out. I found it also necessary to use starch as an indicator, as the solution became apparently colorless before all the free iodine had been taken up.—After *Pharm. Journ.*, January 2d.

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**Prof. Friedrich A. Fluckiger,** of the University of Strassburg (the Nestor of pharmacognosists, not so much by age as by standing and reputation), will retire to private life at the close of the present winter session. It is unnecessary to recall at this time the great services of the retiring savant to pharmacognosy, chemistry, and the history of drugs, in all of which departments he has raised for himself monuments which will outlast his life and that of most of his contemporaries. In order to mark this turning point of his professional career in a suitable manner, a call has been issued by Prof. Dr. A. Tschirch, of the University of Berne, for the formation of an International Committee which shall arrange to express the appreciation of his fellow-laborers for his eminent services to science, not only to Prof. Flückiger personally, but also by a more lasting testimonial in the shape of a fund, either for the periodical bestowal of a "Flückiger Medal" or for periodical grants of money either in form of prizes or otherwise. It is confidently expected that the efforts of the committee will be crowned with success.

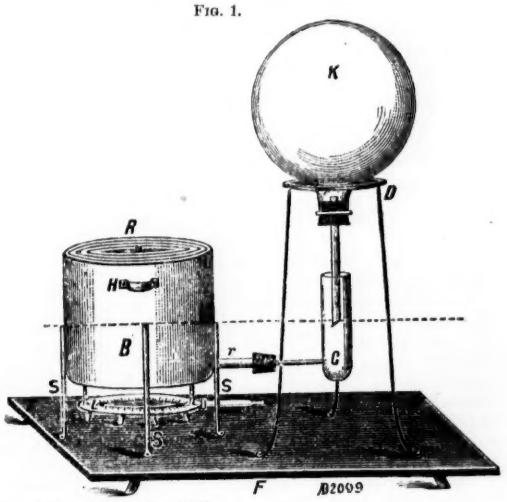
### Estimation of Resin.

The estimation of resin, when contained in soap or mixed with fats or fatty acids, may be made in the following manner, according to V. Boulez:

Dissolve 5 Gm. of the soap, or a corresponding quantity of the mixture containing the resin, in 200 Gm. of boiling water, and then add silver nitrate as long as a precipitate is produced, the boiling being meanwhile maintained. Then evaporate the whole to dryness, dry the residue completely and extract it with ether, so as to dissolve the resinate of silver. Filter, wash the residue with ether, and collect the filtrate in a small, tared, conical flask. [A better plan would be to introduce the dry residue into a flask, add a sufficient but weighed quantity of ether, digest under an upright condenser, then allow to cool, and add enough ether to restore to the original weight. After mixing and allowing to settle, remove an aliquot portion of the ethereal solution, determining its weight by difference.] Allow the ether to evaporate, dry in a drying oven, and weigh.

To control the accuracy of the result, the resin may be titrated with soda: 1 Gm. of resin corresponding to 0.122 Gm. of NaOH.—*Soc. Chim. du Nord* and *Chem. Zeit.*

Fig. 1.




Dittmar's Porcelain Water Bath.

### PORCELAIN WATER BATHS.

Prof. W. Dittmar has had constructed for his use several porcelain water baths, and has found them far superior to metallic ones, as they are much cleaner and less liable to contaminate materials placed upon or in them for evaporation. Naturally they must be treated with proper care. The water bath is shown in the accompanying cut. It was furnished by Kaehler & Martini, of Berlin. As will be seen from the illustration, it is cylindrical, has a handle on each side and a set of concentric rings on top. It rests on a tripod frame, and is connected by a lateral tube with a constant-level apparatus, the operation of which is self-evident. The bath is heated by a ring burner.—After *Chem. Zeit.*

2099-3000]

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**Test for Hydrogen Peroxide.**—When a drop of a 10-per-cent solution of metaphenylene-diamine chloride is boiled with a few drops of water and a drop of hydrogen peroxide solution, a carmine-red coloration is produced. This reaction will detect 0.005 Mgm. of hydrogen peroxide in a drop of water, but is affected by the presence of nitrites. The test is thus modified, to be independent of the presence of the latter compounds: One or 2 drops of metaphenylene-diamine chloride are added to 1 Cc. of ammonia solution containing a few drops of hydrogen peroxide solution. The mixture is boiled for some minutes, when the previously colorless solution becomes blue, of intensity corresponding with the peroxide present. Addition of alkali hydroxide solution changes the color to red. —G. Denigès in *Bull. Soc. Chim.* and *Journ. Chem. Soc.*

### Selected Formulæ from the German Unofficial Formulary.*

*Mistura Solvens.*

Solvent Mixture.

| | |
|---|---|
| Ammonium Chloride | 5 parts. |
| Purified Extract of Glycyrrhiza | 3 " |
| Water | 193 " |

*Note.*—The *Mistura Ammonii Chloridi* of the National Formulary was intended to be equivalent to what is usually dispensed under the above title. But the proportions there given are different. Placed side by side and reduced to the same system of weights and measures, the proportions would be:

| | Germ. Form. | Nat. Form. |
|---|---|---|
| Ammonium Chloride | 195 gr. | 180 gr. |
| Purif. Ext. Glycyrrhiza | 117 " | 180 " |
| Water | 16 fl. oz. | 16 fl oz. |

*Natrium Pyrophosphoricum Ferratum.*

[*Ferri Pyrophosphas. Ferri Sodio-Pyrophosphas.*]

| | |
|---|---|
| Sodium Pyrophosphate | 20 parts. |
| Solution of Chloride of Iron (Germ. Pharm., spec. grav. 1.280) | 12 " |
| Water | q. s. |
| Alcohol | 100 parts. |

Reduce the sodium pyrophosphate to powder and mix it with 40 parts of cold water; then add, constantly stirring, the solution of chloride of iron previously diluted with 18 parts of water, in small portions at a time, allowing any produced precipitate to become redissolved before a new portion of the iron solution is added. To the green solution thus finally produced add the alcohol, separate the precipitate caused thereby, wash it with a little alcohol, press between filtering paper, and dry in a lukewarm place.

The product is a white, odorless, faintly saline powder, having only a slight ferruginous taste and a faintly alkaline reaction.

*Note.*—The pyrophosphate of iron of the U. S. Pharmacopœia is prepared by the mutual reaction between citrate of iron and pyrophosphate of sodium, and no attempt is made to separate the new sodium salt here produced, but the whole mixture is evaporated and scaled. In the preparation of the German Formulary the alcohol precipitates the largest part of the chloride of sodium produced by the reaction.

*Oleum Carbolisatum.*

Carbolized Oil.

| | |
|---|---|
| Carbolic Acid | 2 parts. |
| Olive Oil | 98 " |

Dissolve by the aid of a gentle heat.

*Oleum Chloroformi.*

| | |
|---|---|
| Chloroform | 1 part. |
| Olive Oil | 2 parts. |

Mix them.

*Oleum Jecoris Aselli Ferratum.*

[*Oleum Morrhuæ Ferratum.*]

Ferrated Cod-Liver Oil.

| | |
|---|---|
| Benzoate of Iron | 1 part. |
| Cod-Liver Oil | 100 parts. |

Triturate the iron salt with the cod-liver oil, and warm gently until the former is dissolved.

*Oleum Jecoris Aselli Jodatum.*

[*Oleum Morrhuæ Iodatum.*]

| | |
|---|---|
| Iodine | 1 part. |
| Cod-Liver Oil | 1,000 parts. |

Triturate the iodine with some of the cod-liver oil, and shake frequently until the iodine is dissolved.

* Continued from our last volume, page 377.

### Creolin-Iodoform Ointment.

| | |
|---|---|
| Creolin | 15 gr. |
| Iodoform | 30 " |
| Vaseline | 6 drachms. |

Make into an ointment.

The advantage of this prescription is said to be that the smell of the iodoform is well masked.—*Les Nouveaux Remèdes*, September 24th, 1891, and *Therap. Gaz.*

### Hyacinth Essence.

| | |
|---|---|
| Hyacinthin | 60 parts. |
| Oil of Neroli (Bigarade) | 10 " |
| Tincture of Musk | 50 " |
| Tincture of Benzoin | 100 " |
| Extract of Jasmin (triple) | 500 " |
| Alcohol (deodorized) | 3,000 " |
| Orange-Flower Water (triple) | 300 " |

### Eau de Fleur.

THIS is for removing freckles. It consists of—

| | |
|---|---|
| Oil of Lavender | ℥ iv. |
| Oil of Bergamot | ℥ iv. |
| Oil of Neroli | ℥ ij. |
| Oil of Portugal | ℥ ij. |
| Oil of Cloves | ℥ i. |
| Musk | gr ½. |
| Water | pints 3½. |
| Rectified Spirit | " 3½. |

Let it stand for a week, and filter through magnesia.—*Chem. and Drugg.*

### Erasmus Wilson's Hair Lotion.

A CORRESPONDENT of the *Pharmaceutische Zeitung* gives the following as being a copy of a recipe of this hair lotion written by Dr. E. Wilson himself:

| | |
|---|---|
| ℞ Ol. Amygdal. dulc., | |
| Liq. Ammon. caust., | |
| Spir. Chloroform. B. P. | āā ℥ i. |
| Spir. Rosmarini | ℥ v. |
| Essent. Limonis | ℥ ss. |

*Note.*—Spirit of chloroform, B. P., is made by mixing 1 fluidounce of chloroform with 19 fluidounces of alcohol; spirit of rosemary, 1 fluidounce of oil of rosemary with 49 fluidounces of alcohol. Essence of lemon (not official) may be made like the official essences of anise and peppermint, by mixing 1 volume of oil of lemon with 4 volumes of alcohol.

### Commercial Goa Powder.

AT a recent meeting of the North British Branch of the Pharm. Society of Great Britain, Mr. W. Duncan gave an account of a number of analyses made by him of Goa powder obtained from various sources. The results, which are tabulated below, go to prove that the present supply of Goa powder is good, while it was incidentally pointed out by the author that the crude Goa powder is more efficacious than the purified chrysarobin, as far as his experience went. The following are the results:

| Sample. | Chrysarobin. | Moisture. | Insoluble. |
|---|---|---|---|
| 1 | 76.90 | 2.10 | 21.00 |
| 2 | 55.50 | 3.00 | 41.50 |
| 3 | 80.80 | 2.60 | 16.60 |
| 4 | 66.60 | 2.40 | 31.00 |
| 5 | 81.80 | 2.20 | 16.00 |
| 6 | 82.30 | 2.20 | 15.50 |
| 7 | 57.20 | 3.30 | 39.50 |
| 8 | 70.80 | 1.20 | 28.00 |
| 9 | 68.85 | 2.90 | 28.25 |
| 10 | 69.10 | 2.90 | 28.00 |

A discussion followed, in which Mr. T. Stephenson (Bombay) pointed out that, in spite of the introduction of the B. P. chrysarobin, Goa powder was still largely used by the natives of India. The method usually employed was to squeeze the juice of a lemon on the affected part, and then rub in the powder, it being found that when

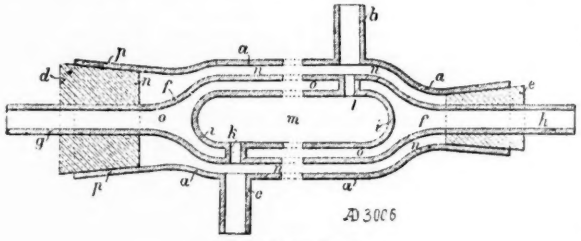
used in this way it was more efficacious. The method he had found from experience most convenient and efficacious was to dissolve the crude powder in benzol or some similar hydrocarbon, and apply to the affected part by means of a brush. He said that the word "chrysarobine" was first applied to the crude powder by Mr. Kemp, while the name "chrysarobin" was subsequently applied by others to the purified product, hence the confusion that had arisen.—After *Chem. and Drugg.*

### A New Solvent of Camphor.

From the frequency with which the indications for the subcutaneous injections are met with it is evident that a good and reliable solvent for this substance is a great desideratum.

Ethereal solutions rapidly evaporate. Alcoholic solutions also evaporate and the camphor becomes precipitated, so that injections of such solutions produce severe pain or even abscess. Solutions of camphor in oil are difficult to employ, besides possessing the disadvantage of the liability of becoming rancid.

In the *Zeitschrift für Therapie* for September 1st, 1891, Dr. Karl Rosner recommends in the highest terms a solution of camphor in liquid paraffin, which, when slightly warmed, forms a perfectly clear and limpid solution. He states that he has kept this solution for more than five years without its properties becoming changed.




Greiner's Condenser.

### AN IMPROVED CONDENSER.

E. Greiner has put on the market an improved condenser, in which the vapors of the volatile liquid to be condensed are made to pass between an external as well as an internal current of cold water.

The annexed cut shows the construction.

The cold water enters at *b* or *c*, and is discharged through the latter tube at the opposite side. The tube *o f* is the condenser proper. At both ends it is contracted and made to pass through two rubber stoppers, *d*, *e*. Its central portion is expanded, and inside of it is placed a glass chamber, *m*, communicating with the outer water space through the tubes *l* and *k*.—*Zeitsch. f. angew. Chem.*, No. 23. 3006]

### AREO-PYCNOMETER.

The two forms of specific-gravity apparatus here shown, and known as the Fritsch-Kreidel apparatus, which were specially constructed for the rapid determination of the specific gravity of beet juice, are applicable for most other liquids, particularly when only a small amount of liquid is available. Of course they may be constructed in various other shapes.

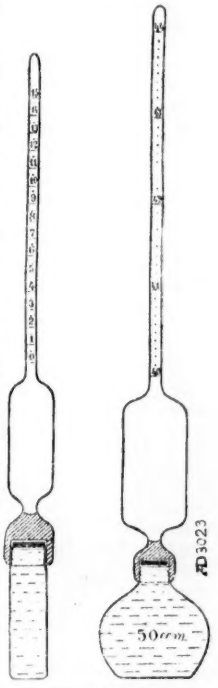
The specific-gravity bottle, or pycnometer, is the lower vessel. This is filled with the liquid at the normal temperature (say 15° C.), and its orifice, which is carefully ground, closed with a well-fitting glass plate. The areometer part is then screwed upon it, and the whole immersed into pure water of normal temperature.

The scale marked upon the areometer may be either an empirical one, showing percentage of a certain substance in solution, or it may show degrees of Baumé, or true specific gravity. Of course the zero point in the case of percentage, or the unit point (1.000) in the case of true specific gravity, is determined by charging the pycnometer with pure water at normal temperature and marking the place on the stem to which the latter sinks in pure water, likewise of normal temperature.—After *Chem. Centralbl.* 3023]

### Reactions of Cocaine and Ecgonine.

If a barely visible particle of cocaine is placed in a porcelain capsule, covered with 0.5 to 1 Cc. of concentrated sulphuric acid, stirred until solution is complete, and a quantity of potassium or sodium iodate or iodic acid, twice or three times as great as that of the cocaine taken, is added, and the whole gently heated with great care on the water bath, the liquid soon exhibits striations of a bright green color which, on continued heating, changes to grass-green and subsequently into blue; on raising the temperature the liquid becomes violet and violet fumes are evolved.

This reaction is very sensitive, and is obtained very clearly with 0.00005 Gm. of the hydrochloride; with very careful working, 0.00002 Gm. of the base may be recognized. The action of sulphuric and iodic acids on a large number of alkaloids has been investigated by the author, and from the results, which are given at length, it appears that whilst many alkaloids—as, for example, thebaine, atropine, chelidonine, corydaline, etc.—exhibit highly characteristic color changes, only caffeine and theobromine give the same sequence of chromatic effects when the test is made as described for cocaine. If, however, the quantity of iodic acid used is not too small, the greenish or bluish-green coloration exhibited by these alkaloids is not followed by any violet coloration as in the case of cocaine.




Fritsch-Kreidel's Areo-Pycnometer.

Traces of benzoic acid behave with sulphuric and iodic acids exactly like cocaine, and the behavior of the alkaloid is probably due to its decomposition by sulphuric acid with the formation of some benzoic acid. Ecgonine gives under the same conditions a yellow coloration, which quickly changes to bright red, and finally to brown. On adding a drop or two of a dilute sulphuric acid solution of potassium permanganate (0.5 per cent) to a little cocaine dissolved in a few cubic centimetres of concentrated sulphuric acid, a violet coloration is obtained, which disappears on agitation and reappears on adding more of the reagent. With ecgonine a yellow coloration is given by the first few drops of the reagent, and subsequent additions produce a violet coloration, which is more stable than that obtained with cocaine. A solution of iodine in potassium iodide affords a ready means of distinguishing cocaine from ecgonine. With the former a reddish-brown precipitate is formed, consisting of microscopic, perfectly spherical, black globules. Ecgonine likewise yields a reddish-brown precipitate, which, however, becomes crystalline in a few minutes, forming microscopic tufts of reddish-yellow, rhombic tables or prisms. No crystallization is obtained if the dilution of the solution is more than 500 to 1. Ecgonine may be recognized by this test in the extracts from animal remains; urine must, however, be tested directly by placing a drop on a glass slip, adding 1 or 2 drops of the reagent, allowing it to evaporate almost to dryness, and examining under the microscope. The urine must contain at least $\frac{1}{800}$ of ecgonine. From further experiments made by the author it appears that cocaine is not affected by prolonged contact with putrefying animal remains, and that, taken internally, it is almost entirely decomposed in the system, only a small proportion passing into the urine.—D. Vitali in *L'Orosi*, after *Journ. Chem. Soc.*

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**Doctor**—Did you have a chill? Patient—It seemed so. Doctor—Did your teeth chatter? Patient—No; they were in my dressing-case.

### Disinfection of the Hands.

DR. H. A. KELLY, after giving the details of a large number of experiments made by himself and his associates as to this most important ante-operative procedure, reaches the following conclusions as to the best method to be employed:

1. Scrubbing the hands, with especial attention to the nails—not more than 1 Mm. in length—for ten minutes in water, frequently changed, at about 40° C. (104° F.).

2. Immersion of the hands in a solution of permanganate of potassium, made by adding an excess of the salt to boiling distilled water until every part of the hands and lower forearms is stained a deep mahogany-red or almost black color. They are then transferred at once to a saturated solution of oxalic acid until completely decolorized and of a healthy pink color. This decolorization is accompanied by a sense of warmth, due to chemical reaction, and a sharp stinging wherever there is any abrasion of the epidermis.

3. Washing off the oxalic acid in warm, sterilized water. By this simple process the hands are rendered more nearly absolutely aseptic than by any other known means.

In 50 experiments after disinfection by this method, 44 remained without growths; the remaining 6 yielded respectively 80, 20, 19, 9, 5, 4 colonies—an enormous quantitative difference in favor of permanganate of potassium and oxalic acid as contrasted with soap and water and corrosive sublimate.

The author found that solution of bichloride of mercury, even as strong as 1 in 500, is not germicidal. Neither is peroxide of hydrogen.—*Am. Journ. of Obstetrics*, after *Therap. Gaz.*

### Notes on Ozokerite.

AT a recent meeting of the Society of Chemical Industry Mr. B. Redwood read a paper on Galician petroleum and ozokerite, from which the following is taken (after *Chem. and Drugg.*): Ozokerite is a more widely distributed mineral than is generally supposed. There are places in England, Austria, Germany, Asia, Egypt, and North America where it is found more or less abundantly; but it is from Boryslaw, in Galicia, that most of it is obtained. Boryslaw is a peculiar town of 10,000 inhabitants, situated on the northern slopes of the Carpathians. About 100 individuals have rights to little bits of land over the ozokerite district, and each person mines his own little plot with the help of his wife and children and a workman or two. It is a precarious job, as explosive gases and eruptions of the soft ozokerite are frequent, causing the death of the miners. Mining is done in the most primitive fashion. The same bucket that takes up the mineral takes down the miner. He puts one foot in the bucket; the other he uses to guide himself going down. He is provided with a life belt and line and a Davy lamp—provisions for safety which the Government insists on, owing to the extremely high rate of fatality. It is not difficult to get out the ozokerite, a pick and shovel being all that is necessary. The duty of the wife generally is to work the ventilating arrangement. The ozokerite is sometimes soft, but may be as hard as gypsum, and is generally associated with rock salt. It ranges in density from specific gravity 0.850 to 0.950, and melts at from 58° to 100° C. The soft varieties give the miners great trouble, and very stout timbers are employed to counteract the pressure on the galleries. Mr. Redwood saw one shaft, called the Asparagus Shaft, where, at a depth of 160 M., a miner put his pick into a thin layer of sandstone. Immediately the underlying soft ozokerite began to grow up through the hole like asparagus, and kept growing as the "shoots" were broken off. A fine model served to illustrate the primitive method of mining, and Mr. Redwood added that a more scientific method has been tried, but failed, owing, however, to the non-suitability of the spot selected. It is calculated that there are yet 2,000,000 tons of the mineral to be brought to the surface in Galicia. In preparing the ozokerite for the market, it is first hand-picked to free it from earthy matter, then washed with cold water, whereby the earth sinks and the ozokerite rises. The earth is next thrown into hot water, whereby a little more of the wax comes to the surface, and after that about 1 per cent can still be separated by treatment with benzin and steam. There has been a great falling-off in the industry during recent years. Thus in 1883 the production was 106,299 metre-centners of 100 kilos, this increasing to 139,254 in 1886; but since then it has fallen to 61,699, mainly owing to the use of paraffin.

As purified on the Continent, ozokerite is known as ceresine. To make this, the crude mineral is treated with fuming sulphuric acid, and is then filtered through charcoal (the carbonaceous residue from the manufacture of potassium ferrocyanide). Thus obtained ceresine is pale yellow, but color is added, and, so prepared, the melting point ranges from 61° to 78° C. It contains a colloid body, which is the cause of the very smoky flame of candles made from it, which also gutter greatly. In the process of purification patented by Messrs. Field, of Lambeth, this colloid body is separated, and the purified, white ozokerite has great hardness and burns admirably and without guttering. In addition to ceresine there are obtained from the crude ozokerite 3 per cent of naphtha, 6 per cent of semi-solid "ozokerine" (a vaseline-like substance), 12 per cent of soft paraffin (melting point 44° to 46° C.), and there remains, in Messrs. Field's case, a valuable black wax. This wax has become of great value, and enough of it cannot be got. It is fused along with india-rubber, and made into an electrical insulating material—*okonite*—which is possessed of great flexibility. It is also used alone for the manufacture of shoemakers' black heel ball, and is displacing the old-fashioned ball used for the edges of boots.

### The Estimation of Iodoform.

WHEN iodoform is heated with alcoholic solution of soda, it is split up with the formation of sodium iodide, sodium formate, and other substances. The proportions appear to be: 16 parts of iodoform ($CHI_3$) require 42 parts of soda (NaOH), and give 35 parts of sodium iodide (NaI) and 4 parts of sodium formate ($NaHCO_2$). The estimations were made as follows for 100 parts of iodoform:

| | Found. | Calculated from above proportions. |
|---|---|---|
| Soda | 26.4 | 26.6 |
| Iodine as Iodide | 69.3 to 70.4 | 70.2 |
| Formic Acid | 3.34 | 2.92 |

These figures show that the reaction is a complex one, and I have not attempted to construct an equation to express the changes which take place. With the assumption that for every 100 parts of iodoform 70 parts of iodine are produced as iodide, a fairly reliable method of working is possible. About 0.1 to 0.15 Gm. of iodoform, or such quantity of the substance to be examined as will give that quantity, is weighed out and dissolved in alcohol, an excess of alcoholic soda is added, and after about ten minutes' digestion, near the boiling point of the alcohol, the excess of alcohol is evaporated; the residue is taken up with water, made slightly acid with dilute nitric acid, and a small quantity of calcium carbonate added to restore neutrality. The solution is then titrated with the solution of nitrate of silver used for water analysis (of which 1 Cc. = 0.005418 Gm. iodoform). An excess of about 0.3 Cc. is required to produce a good end reaction with chromate of potassium, and this should be subtracted.

The following test analyses show the reliability of the method:

| Iodoform. | Silver solution. |
|---|---|
| 0.126 gr. | took 23.4 Cc. = 0.1268 gr., or 100.1%. |
| 0.141 " | " 25.75 " = 0.1395 " or 99.0%. |
| 0.0995 " | " 18.5 " = 0.1002 " or 100.7%. |
| 2.203 " of an 8.5% mixture | " 34.6 " = 0.184 " or 8.4%. |
| 1.8385 " " " " " | " 29.6 " = 0.1575 " or 8.5%. |

The method does not take more than about half an hour to perform, and is therefore practical. Should the iodoform be obtained in ethereal solution—as, for instance, in the estimation of acetone—the ether need not be evaporated, but can be mixed directly with the alcoholic soda. No danger of loss of iodoform need be feared, and it is not necessary to use an inverted condenser.—H. DROOP RICHMOND in the *Analyst*.

## UNIVERSAL GASOMETER.

A VERY useful apparatus, applicable to many operations in the laboratory, is that here described and figured. It has been devised by A. Eichhorn, to whom we are already indebted for many other improved laboratory utensils.

This particular apparatus consists of a cylindrical tank made of strong tinned iron or copper, which can be filled with, or emptied of, water in such a way that the residuary air contained in the tank is either rarefied or compressed, thus enabling it to act either by suction or pressure. At the same time the pressure can be read off from a mercurial manometer, M, and the level of the water is shown by a water gauge, W. The tube A admits water to the tank, and E is the outflow.

The faucet H is so constructed that it can be set in five different positions, changing the intercommunication between the gas and air space in every possible way, namely:

*Position a:* Both water and air (or gas) are shut off.
*Position b:* Water turned on; air (or gas) shut off.
*Position c:* Water turned on; air (or gas) escaping.
*Position d:* Water turned off; air (or gas) shut off or allowed to escape.
*Position e:* Water allowed to escape; air (or gas) shut off or confined.

The faucet H may be attached either to the apparatus itself, or—if more convenient for lecture purposes—may be attached to the lecture platform, while the tank may be at a distance and connected with the faucet by suitable tubing.

When the apparatus is to be used as an ordinary gasometer, the tank is first filled with water by turning the faucet as in position *c;* it is then turned to *a*, and lastly to *e*. The rate of escape of the water may be easily regulated so as to correspond to the rate of influx of the gas. When the apparatus is to be used as a blast—for instance for a blowpipe—position *c* is required, the tank having been previously nearly emptied of water. If the tank has a capacity of about 100 L., the blast will last during twenty-five or thirty minutes.

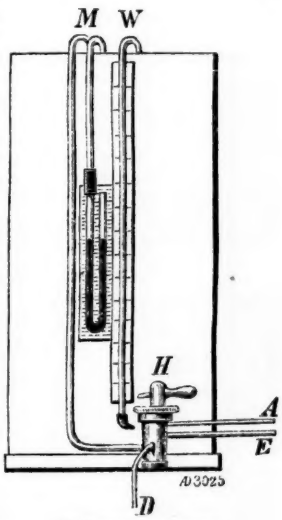
To use the apparatus as a vacuum pump, the faucet is turned to the position *e*.—After *Chem. Zeit.*, No. 31, 1891.

[*Note by Ed. Am. Drugg.*—We have used an apparatus similar to the above, but constructed in a rough way, for measuring gases. Having occasion at various times to measure the volume of oxygen gas traversing a series of liquids, the gas being supplied from cylinders in which it was compressed, we used a regular 40-gallon oil tank having a narrow inlet on top and a faucet below. The orifice on top was connected with the oxygen cylinder, and also with a U-tube containing mercury, resembling the manometer shown in the cut; a separate tube, opening into the air, but controllable by a pinchcock, being provided, to allow the air or gas to escape when the tank was to be filled with water. On starting, the tank was thus filled, the water supply then shut off and the faucet opened over a reservoir gauged at the number of gallons which it was required to measure of the gas. The flow of water would soon cease, as when the air in the connecting tubes (which were of very stout rubber) became rarefied. The gas was then carefully turned on, the mercurial manometer being watched. As soon as the requisite number of gallons of water had flowed from the tank, the water faucet as well as the gas valve at the cylinder were shut off, and, as the gas in the tank was then somewhat rarefied, enough more gas was admitted from the cylinder to equalize the internal and external pressure—that is to say, until the mercury in both branches of the U-tube was on the same level. Had the gas in the tank been under pressure instead of being rarefied, the excess of pressure would have been allowed to escape through the tube bearing the pinchcock. This last-named tube was chosen long enough to be at once connected with the apparatus through which the oxygen was to be passed, and the pinchcock was applied close to its end. Moreover, on first starting the apparatus some oxygen was admitted to displace all air in the rubber connections, and the water admitted subsequently. Hence, when the tube bearing the pinchcock was attached to the apparatus through which the oxygen was to be passed, practically no air was carried over, the only air bubbles passing through the liquids being those derived from the space in the wash bottles, etc., which could be easily measured beforehand. When, finally, the gas in the tank was under normal pressure, the pinchcock was opened and the water turned on gently, thus causing the known volume of gas to traverse the liquids until it was completely discharged.] 3025]

## The True Litre or Mohr's Litre for Volumetric Analysis.

THE expressed desire that the German Imperial Standards Commission should undertake to test and certify measuring vessels for chemical purposes has brought into prominence the question whether the *true litre* ought to be used for this purpose, or the very prevalent "Mohr's litre," which is about 2 Cc. greater than the true litre. The Commission, although holding itself bound by the terms of its constitution not to authenticate as a litre measure any vessel which did not conform to the true definition, nevertheless took steps to ascertain the opinions of various scientific men with regard to the question.

In view of the common practice of expressing the specific gravities of liquids with reference to water of the *same temperature* (and that a mean working temperature) as unity, which practice is already recognized by the Commission in testing hydrometers, and considering the convenience of expressing the unit of weight and that of volume by an identical number under practical working conditions, as well as the confusion which would result from neglect of the corrections rendered necessary by the employment of "true" litre vessels at any temperature other than 0°, the author suggests that Mohr's litre should be retained for volumetric work, and that the certificate to be issued should be worded in some such manner as the following:



Eichhorn's Gasometer.

The flask X, filled with water of 17.5° C., so far that the mark is tangent to the lower meniscus, contains an amount of water which equipoises a brass kilogramme in air of 760 Mm. pressure, and therefore holds a so-called Mohr's litre.—*W. Fresenius* in *Zeitsch. f. anal. Chem.* and *J. Chem. Soc.*

## The Present Source of Nitrates.

UNTIL twenty years ago nearly all the saltpetre, or potassium nitrate, of commerce was obtained from India, where it is collected in the form of an incrustation upon the soil in thickly populated regions, arising from the gradual oxidation of animal organic matter. The supply of saltpetre from this source has decreased, and now amounts to about 25,000 tons per year. A large quantity of saltpetre was also made in this country, in the early part of this century, by leaching the earthy matter dug up in caves, chiefly in the Mammoth Cave, Kentucky.

The deposits of sodium nitrate, or Chili saltpetre, near the seacoast of Chili, in the province of Tarapacá and the desert of Atacama, have lately been fully described in a most interesting report by Consul Walker, of Bogota. These deposits have been known and worked for nearly seventy years. They extend a distance of 260 miles along the coast, and have in some places a depth of over 6 feet. The total amount of available material has been estimated to be 178,000,000 tons. The presence of 20 per cent of salt and 0.05 per cent of iodine in the mineral indicates

that it has been formed by the gradual oxidation of the nitrogenous matter of seaweed. The "caliche" is refined by recrystallization from water, and comes into commerce 95 to 98 per cent pure.

The exportation of nitrate of soda from Chili amounted in 1888 to 785,000 tons (of 1,000 kilos), and in 1889 to 921,000 tons. By far the larger part of this product is used in agriculture.

Potassium nitrate is now chiefly obtained by treating the Chili nitrate of soda with potassium chloride from Stassfurt. More than 50,000 tons of the nitrate of soda produced in 1888 were used for this purpose, and Pfeiffer states that 41.2 per cent of the potassium chloride produced at Stassfurt is employed in this industry. The production of potassium chloride in 1888 was 123,550 tons: 41.2 per cent of this is 51,000 tons, which would correspond to an annual production of nearly 70,000 tons of artificial saltpetre.—After *Amer. Chem. Journ.*

### Distinction between Alpha- and Beta-Naphtol.

To 10 Cc. of a saturated aqueous solution of naphtol there are added: (1) alcohol 2 Cc., nitric acid 2 Cc., mercury nitrate 10 drops; (2) alcohol 2 Cc., potassium nitrate (saturated solution) 3 drops, sulphuric acid 10 drops. These reagents produce color reactions as follows:

ALPHA-NAPHTOL.

*Reagent* 1.—The yellow color of the mixture is not changed on boiling; chloroform is colored yellow and ether yellowish-green; gun-cotton is dyed yellow. Sulphurous acid renders the mixture immediately turbid, with separation of a red precipitate.

*Reagent* 2, on the other hand, turns the reddish-brown color of the mixture to a brown on boiling; chloroform is colored greenish-brown, and ether a yellowish-green; gun-cotton is dyed a dirty yellow. Sulphurous acid turns the mixture a dirty green without precipitation.

BETA-NAPHTOL.

*No.* 1 *Reagent.*—Intense orange-yellow color passes at once into an orange-red and is not altered by boiling; gun-cotton is dyed a rose-red; the mixture colors chloroform a ruby red, and ether a yellow. Sulphurous acid gives the mixture a rose color, which disappears very gradually, whilst a yellow or black precipitate is formed.

With *reagent No.* 2 there is produced an intense violet red, not changed by boiling; gun-cotton is dyed a vinous red, chloroform is colored a greenish-yellow, and ether a yellow; the red color is at once destroyed by sulphurous acid, but without precipitation.

By means of these reactions the author succeeded in detecting beta-naphtol in urine, but not alpha-naphtol.—*Zeitsch. f. anal. Chem.* and *Chem. News.*

### Welmans' Test of the Purity of Lard.

Mr. P. Welmans has communicated a new test for the presence of foreign fatty oils in lard, to the *Pharmaceutische Zeitung* (1890, No. 101), which is based on the assumption that vegetable oils probably contain, besides the glycerides of fatty acids, certain substances of alkaloidal or glucosidic nature which might be detected by certain reagents. He eventually found phosphomolybdic acid, or its sodium salt, to be a suitable reagent. The oils to be tested are dissolved in chloroform and strongly acidulated with nitric acid. The following method is given:

One Gm., or 25 drops, of the fatty oil is put into a test tube, 5 Cc. of chloroform are added, next "2 Cc. of phosphomolybdic acid or of sodium molybdate" [the author means 2 Cc. of the solution of these substances of the usual strength used in analysis, viz., 1 in 10], finally some drops of nitric acid, and the whole is well shaken. The reagent will be reduced and the mixture acquire an emerald-green color. Upon standing a few minutes it will separate into two layers. The lower, chloroformic one, which was originally yellowish, due to the dissolved oil, will now be colorless, like water, while the upper one will have a fine green color.

This reaction appears with all vegetable oils, except those which have undergone certain chemical treatment, when it may fail altogether or appear only feebly. On supersaturating the acid solution with ammonia, or an alkali or an alkaline earth, the green color changes to a blue of equal intensity.

From the table appended by the author we notice that purified rape oil (freed from acid), bleached linseed oil, and cocoanut oil give no color immediately; on standing for about eight days a light green tint is produced, which is turned bluish by alkalies. Cottonseed oil, the principal adulterant of lard, is rendered at once deep green, and, by subsequent addition of alkali, dark blue.

If the test is applied, as described above, to 1 Gm. of pure lard, tallow, butter, goose fat, etc. [any animal fat], previously dissolved in chloroform, the yellow or yellowish tint of the latter is not altered, and supersaturation with ammonia or an alkali renders the mixture colorless. But the presence of even a very small proportion of a vegetable oil produces the above-described color reaction, from the intensity of which some clue may be obtained regarding the proportion of the adulterant.

Mineral oils are not affected by the reagent.

Cod-liver oil is the only animal oil which has a reducing action on the reagent. It causes a bluish-green color, which is rendered deep blue by alkalies. [However, cod-liver oil is not likely to be used as an adulterant of lard.]

*Picric Acid* may, according to the author, also be used as a test for the presence of cottonseed oil in lard. On adding a cold-saturated solution of picric acid in ether to 10 Cc. of an oil, the picric acid will be dissolved by the latter and acquire a brown color. If the oil was cottonseed oil or a mixture containing it, it will remain behind with a brownish-red color upon evaporating the ether. If the lard or lard oil were pure, it will have a lemon-yellow color after dissipation of the ether.

A necessary condition for the success or reliability of the above-described reaction is the absolute purity of the reagent and cleanliness of the utensils, to prevent the reagent from being reduced by substances other than those contained in the oil.

### Peroxide of Hydrogen an Antidote of Hydrocyanic Acid.

It has been shown by Attfield (1863) that hydrocyanic acid, when brought in contact with an excess of hydrogen peroxide, is converted into oxamide:

$$\underset{\text{hydrocyanic acid}}{2HCN} + \underset{\text{hydrogen peroxide}}{H_2O_2} = \underset{\text{oxamide}}{C_2O_2(NH_2)_2}$$

Oxamide is a solid almost insoluble in water, and probably innocuous, though this is only certain when it is in very minute quantities.

Paul Koehl found that if a solution of hydrogen peroxide free from barium, and otherwise as pure as possible, is administered hypodermically in cases of poisoning by hydrocyanic acid (in animals), before the appearance of convulsions, the toxic effects of the poison are neutralized. The same animal was repeatedly treated first with the poison and then with the antidote, and was saved each time.

He therefore thinks that peroxide of hydrogen could perhaps be used for this purpose even in the human subject.

At first he lost several animals to whom the antidote had been administered, but he had reason to suspect that death was not due to the hydrocyanic acid. On examining the peroxide of hydrogen he found it to contain notable quantities of barium. To avoid this he prepared a solution of the peroxide himself by acting with 200 Cc. of a saturated aqueous solution of oxalic acid upon 170 Gm. of hydrated barium binoxide. The resulting solution was free from oxalic acid, contained only traces of barium when tested with sulphuric acid, and "was nearly saturated with peroxide" [so the author says]. It is this solution which the author used.

The author's method of treatment consisted in injecting 1 Cc. of the solution prepared by him, about every three minutes.—From *Arbeiten des pharmakol. Inst. zu Dorpat*, vii., 155.

### The Recognition of Arsenic.

ARSENIC, in whichever state of oxidation it may be, can be recognized in the presence of antimony and tin by strongly acidulating the solution containing it with hydrochloric acid, and adding at least 1 Gm. of sodium hypophosphite to 10 Cc. of solution. On warming on the water bath, the arsenic is precipitated as a brown or brown-black powder. Very dilute solutions need heating for thirty minutes, and a coloration instead of a precipitate may be produced. The reaction does not take place in solutions acid with sulphuric acid in the absence of a halogen acid. Its sensitiveness is increased by the addition of a crystal of potassium iodide, 0.025 Mgm. of arsenic being detectable, whereas the limit in the absence of the iodine is 0.05. The "noble metals" and copper must be absent; bismuth and antimony are only precipitated in strong solutions; the addition of potassium iodide should be omitted if the former be present, on account of the strong yellow color of bismuth iodide. In the presence of much iron the solution should be covered to prevent free access of air, as otherwise it will become yellow. A separation of antimony and arsenic cannot be based on this reaction, as the precipitate is too easily oxidizable. In using Marsh's test the addition of platinum chloride to aid the solution of the zinc should be avoided, as arsenic is retained thereby, apparently as an arsenide of platinum (?)

According to Brauner and Tomiczek, arsenic is precipitated as pentasulphide from a warm acid solution of arsenic acid, when a rapid stream of sulphuretted hydrogen is used. With a slow stream a mixture of $As_2S_5$ and $As_2S_3$ comes down. A cold solution in strong hydrochloric acid gives a mixture of $As_2S_5$, $As_2S_3$, and S, and a rapid stream of the gas, if diluted, gives the same result as a slow stream.—J. THIELE in *Annalen*, 256, 55, after the *Analyst*.

### Detection of Minute Quantities of Hydrogen Peroxide, and, Conversely, of Uranium.

SO SMALL a quantity as 0.24 Mgm. of hydrogen peroxide may be detected by adding 1 or 2 Cc. of ether to 5 Cc. of the peroxide solution and a small drop of a 10-per-cent chromic acid solution; and even 0.10 Mgm. can be detected by using 1 Cc. of peroxide solution and 1 Cc. of ether. But by the use of 5 Cc. of a dilute uranium nitrate solution 0.05 to 0.025 Mgm. of hydrogen peroxide in 5 Cc. can be rendered evident; moreover, as little as 0.5 to 0.25 Mgm. of uranium can be detected, and very small quantities determined by this method of treatment.—T. FAIRLEY in *Chem. News*.

### Cinchonamine as a Test for Nitrates.

WHEN nitrates are to be tested for in water, the latter is neutralized with soda or sulphuric acid, as the case may be, the chlorine in solution precipitated with silver acetate, and the slight excess of silver employed precipitated with sodium phosphate; the solution is then evaporated almost to dryness, filtered if necessary, rendered very slightly acid with a drop of dilute acetic acid, and the boiling solution mixed with a warm solution of cinchonamine sulphate. Cinchonamine nitrate is at once precipitated in a crystalline condition, and, after keeping for twelve hours in a cool place, it is separated by filtration, washed first with a cold-saturated aqueous solution of cinchonamine sulphate, and then with a very small quantity of cold water, and dried at 100°. The same method can be employed, with slight modifications, for estimating the nitrates in plants. For this purpose the triturated plant is extracted with boiling water, the solution evaporated to a syrup, and the residue extracted with 40-per-cent alcohol. After evaporating the alcohol, the chlorine in the solution is estimated by means of normal lead acetate, the excess of lead removed with a few drops of sodium sulphate, and the nitric acid then precipitated with cinchonamine sulphate as described above.—ARNAUD in *Ann. Chim. et Phys.* (and *J. Chem. Soc.*).

[*Note by Ed. Am. Drugg.*—Cinchonamine has the formula $C_{19}H_{24}N_2O.HNO_3$—mol. weight 359. Every 100 parts of it correspond to 17.55 parts of nitric acid ($HNO_3$).]

### Note on Pepsin.

IN their commentary on the new German Pharmacopœia, Messrs. Hirsch and Schneider make some remarks upon the subject of pepsin assay which deserve being noted.

The German Pharmacopœia prescribes the following test:

Place an egg for ten minutes in boiling water, and rub the previously cooled albumen of it through a sieve such as is used for obtaining coarse powders. Mix 10 Gm. of this comminuted albumen with 100 Cc. of warm water at a temperature of 50° C. and 10 drops of hydrochloric acid, and then add 0.1 Gm. of the pepsin. On allowing the mixture to stand during one hour at 45° C., agitating repeatedly, the albumen must have disappeared, leaving not more than a few yellowish-white membranes.

The authors of the commentary point out that the test should take into consideration not only the solution of the albumen, but also its conversion into peptone. Hence the solution ought to be tested by the addition of nitric acid, in drops, which addition should not cause more than a very faint opalescence. Hemialbuminose, which is formed as an intermediary product between albumen and peptone, yields a copious precipitate with nitric acid, while peptone yields none.

Instead of ascertaining how much time is necessary to dissolve the whole of the added albumen, it would be more correct to find out *how much* albumen has been dissolved in a given time. According to this view, first advanced by Geissler, the official test should have been worded as follows:

[Proceed as in the original test, but add the whole of the albumen—at all events more than can be dissolved. Then continue:] Digest during three hours. During this time the 0.1 Gm. of pepsin should dissolve an amount of coagulated albumen corresponding to 1 Gm. of dry albumen. On filtering off 10 Cc. of the liquid containing the undissolved albumen in suspension, warming it during ten hours at 40° C., and then adding 1 Cc. of nitric acid in drops, not more than a very faint opalescence should be produced.

The amount of moisture in each separate lot of albumen must be specially determined. One hundred parts of it usually contain from 12.9 to 14.6 per cent of dry albumen.

On the basis of these figures, it is quite proper (as suggested by Geissler) to demand that, when 10 Gm. of coagulated albumen are used for the test (as in the German Pharmacopœia), the undissolved residue, dried at 100° C., should not weigh more than 0.3 Gm.

### Detection of Morphine in the Urine.

A PAPER by Prof. Theodore G. Wormley, of the Pennsylvania University, on the recovery of absorbed morphine from the urine, the blood, and the tissues, has recently appeared in the *Chemical News*. The paper, which appeared in several issues, is much too long to attempt to abstract, but the gist of it is given in the following general considerations: In the use of amyl alcohol for the extraction of morphine from the urine, the urea taken up with the morphine interferes more or less with the purification of the alkaloid. In a residue consisting of a mixture of this kind, the urea, as such, may, as we have found, be decomposed by heating the mixture in an air oven for a few hours at 135° C., without any appreciable loss of the morphine.

But the presence of the products of the decomposition of the urea prove about as objectionable as that of the urea itself. Since urea is freely soluble in water, whilst morphine is only sparingly soluble, it might be inferred that these substances could thus be readily separated.

This is true in regard to pure mixtures, and also when the morphine has assumed the crystalline state; but when present in only minute quantity, the alkaloid seems to be so closely adherent with the urea and coloring matter that these substances are largely dissolved together. Experiments made in regard to the adaptability of isobutyl alcohol for the extraction of morphine from complex mixtures, especially from the urine, show that on treating excess of finely powdered morphine with the hot alcohol and allowing the mixture to stand six-

teen hours, it was found that 1 part of morphine was held in solution by 110 parts by weight of the alcohol. Under the same conditions, 1 part of urea was retained in solution by 49.8 parts by weight of the alcohol. It would thus appear that morphine, while rather freely soluble in isobutyl alcohol, is slightly less soluble in this liquid than in amyl alcohol; whereas urea, on the other hand, is somewhat more freely soluble in isobutyl alcohol than in amyl alcohol.—After *Chem. and Drugg.*

### The Assay of Conium.

MESSRS. E. H. FARR and R. WRIGHT have made a study of the solvent action of alcohol of varying strength upon the soluble and useful constituents of conium fruit. In the course of their investigations (published in the *Pharm. Journ.* of March 21st) it became necessary to assay the several preparations, so as to determine the relative proportion of coniine present in the various preparations. The aim of the operators was to select a process which would combine accuracy of result with simplicity of working. Hence it was decided to exclude those which necessitate distillation, or involve the exposure of the volatile alkaloid to atmospheric influences. Prof. Dragendorff ("Plant Analysis," pp: 61 and 183) states that he has used Mayer's reagent for estimating coniine, but that the results come out too low. The same author also speaks of phosphomolybdic acid as giving good results in estimating the amount of alkaloid in solutions of the pure substance, but states that it is unreliable when other bodies are present. Mr. R. A. Cripps has shown that an ethereal or chloroformic solution of the hydrochlorate of coniine may be evaporated without loss of coniine, and also that the dry salt may be heated for hours at a temperature not exceeding 90° C. without suffering decomposition or volatilization. Messrs. Farr and Wright confirm this statement, and have utilized this feature in their process of assay, which they describe in the following manner:

Fifty Cc. of the sample (Tinctura conii, Brit. Pharm.) are introduced into a porcelain dish, 1 Cc. of normal sulphuric acid added, and the mixture evaporated to low bulk over a water bath with constant stirring.

A little distilled water is then added if necessary, and the evaporation continued until all the spirit is driven off. The solution is then poured into a separating funnel, and the dish rinsed out with 15 Cc. of chloroform and afterwards with a little distilled water.

These are added to the solution in the separating funnel, the whole well shaken and allowed to stand until the chloroform has subsided.

The chloroformic layer is then drawn off and the process repeated with a second 15 Cc. of chloroform.

The acid solution is now shaken up with 2 Cc. of water of ammonia [0 960], and the liberated alkaloids taken out by shaking first with 15 Cc. and afterwards with 10 Cc. of chloroform.

The chloroformic alkaloidal solution is washed with a little distilled water (to free it from traces of ammonia), and is then run into 10 Cc. of a saturated solution of dry hydrochloric acid gas in chloroform, the end of the funnel tube being allowed to dip beneath the surface of the acid chloroform.

The chloroformic solution is allowed to evaporate in a current of air, and the residue heated in a water oven at a temperature not exceeding 90° C. until it ceases to lose weight on further exposure.

Tinct. conii, Brit. Pharm., is prepared of such a strength that 1 pint (imp. meas.) corresponds to 2½ avoirdupois ounces of the dried green fruit.

The authors found that the tinctures made by them in this proportion from various lots of conium fruit varied greatly in percentage of alkaloid, the upper and lower limits being 0.16 and 0.06 per cent, respectively.

### Volumetric Estimation of Chlorides in Urine.

ACCORDING to Antonio Corvi, the chlorides in urine (and other liquids) may be determined by a color reaction depending upon the formation of Prussian blue. The principle is this: The whole of the chlorides are first precipitated by an excess of volumetric solution of nitrate of silver, and the excess of the latter then determined by ferrocyanide of potassium in presence of a trace of ferric sulphate. The ferrocyanide will not form a permanent blue precipitate with the iron salt until all the silver still in solution has been thrown down.

The solutions required are a $\frac{1}{10}$ normal solution of silver nitrate and a $\frac{1}{10}$ normal solution of ferrocyanide of potassium (weighed in an anhydrous state). One Cc. of the latter corresponds to 0.0108 Gm. of silver, or to 0.00355 Gm. of chlorine.

Ten Cc. of the urine are placed in a beaker, acidulated with nitric acid, and 50 Cc. of the silver solution—more than sufficient to precipitate all the chlorine—then added. The volume of the mixture is now carefully noted, the whole filtered, and one-third of the filtrate taken for the assay. One drop of ferric sulphate solution is now added, and the ferrocyanide solution gradually dropped in from a burette until, after stirring, a blue tint just remains permanent.—*Orosi*, 13, 253.

### Distinction between Arsenic and Antimony.

THE stain obtained in Marsh's test is placed in a porcelain capsule and heated with a few drops of pure nitric acid, and a small quantity of a solution of ammonium molybdate in nitric acid is added. Antimony gives no precipitate, but if arsenic is present arsenomolybdic acid separates as a yellow precipitate, which under the microscope is seen to consist of stellate crystals with triangular arms, generally six, arranged in rectangular planes along the axes of a cube. They act on polarized light. The author believes this to be the most sensitive and characteristic test for arsenic.

To prepare the ammonium molybdate solution, 10 Gm. of this salt and 25 Gm. of ammonium nitrate are dissolved in 100 Cc. of warm water. The solution is allowed to cool, and 100 Cc. of pure nitric acid of specific gravity 1.20 is added, drop by drop, with vigorous agitation. The liquid is heated on a water bath for ten minutes, allowed to cool, and filtered after forty-eight hours.—G. DENIGÈS in *Compt. Rend.* (and *J. Chem. Soc.*).

### Analysis of Tartar and Wine Lees.

To estimate the total tartaric acid, 10 Gm. of the substance are boiled with 150 Cc. of water and 7 Gm. of potassium carbonate for thirty minutes. To estimate that contained in potassium hydrogen tartrate alone, the potassium carbonate is omitted and the solution accurately neutralized with sodium hydroxide. This leaves the calcium tartrate undecomposed. In either case the whole is made up to 200 Cc. (203 Cc. for lees), and 100 Cc. of the filtrate are evaporated to 25 Cc., then mixed with 5 Cc. of glacial acetic acid and warmed for fifteen minutes on the water bath. After cooling, 100 Cc. of absolute alcohol are added, the mixture vigorously stirred, and after fifteen minutes filtered by suction through a filter of 10 Cm. diameter. The precipitate is washed with 96 per-cent alcohol until 20 Cc. of the washings, diluted with an equal bulk of water, are rendered alkaline by 3 drops of ½ normal alkali. The filter, with the precipitate, is returned to the basin, boiled with 200 Cc. of water, and titrated with ½ normal alkali. The mixture should be well boiled just before reaching neutrality, and the addition of the alkali continued until a distinct excess is shown by sensitive, neutral-tint litmus paper.—B. PHILIPS & Co. in *Zeitsch. anal. Chem.* and *J. Chem. Soc.*

### Information Wanted.

**C. E. A.**, of Kansas City:—Sulphate of quinine has now reached what appears to be a very low price, and German quinine can be had for about twenty cents per ounce. Have these brands been tested and proven to be pure? Is P. and W. quinine any purer and freer from other alkaloids?

---

**Neutral Litmus Paper.**—An aqueous extract of commercial litmus is acidified with hydrochloric acid and placed within a parchment paper dialyzer for eight days, there being running water outside. Litmus is a colloid substance, and in this way is freed from saline and other impurities. Paper impregnated with this neutral litmus solution is perfectly satisfactory for the determination of reactions.—K. MAYS, after *J. Chem. Soc.*

# American Druggist

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## CORRESPONDENCE AND NEWS.

### ENGLAND.

IT is a matter of some interest that whilst the tripartite plan is in progress on your side of the Atlantic for the extermination of cutting, an attempt has been made to privately sound the trade and the manufacturer as to the possibility of a similar scheme succeeding here. At the outset the idea was ill-managed, for it was taken up and introduced, not by a powerful association, like the A. P. A. or the British Pharmaceutical Conference, but by a well-meaning but obscure suburban chemist. It is hardly necessary to say that the results were not encouraging. Of 100 leading proprietary makers only 20 condescended to reply at all. Of these 7 absolutely declined to entertain any restrictive plan at all, while only 3 gave their support and unqualified approval. The remaining 10 assented with so many conditions attached that it practically amounted to refusals. There can be little surprise at the consistent attempts of many chemists to boycott proprietary preparations that are invariably "cut." The only matter of surprise is that no concerted action has been taken or any special pressure applied by chemists against the manufacturers. Perhaps this is to a certain extent explained by the second part of the above attempt, which applied to the pharmacists themselves. Over 1,000 were circularized setting forth the advantages of a scheme of regulating prices. About 550 replies were obtained, of whom 80 per cent were favorably disposed. But the attitude of the remainder is instructive. Some objected vigorously to any form of "muzzling," as they termed a scheme originated and devised primarily for their benefit. Another coolly observes that he makes the utmost possible show of "cutting," but does as little of it as possible. A third plainly states that he earns his living by reducing the prices of these medicines, having acquired a reputation as a cheap chemist. Finally, a fourth class of correspondents indulge in philosophical contemplations on the subject and argue, complacently enough, that as there is no skilled labor required in handing over a box of pills or somebody's elixir, there is no justification in attempting to obtain a higher remuneration than is obtained by the grocer or stores. With all these divergent opinions in the camp where unanimity must, to be successful, prevail, there can be little wonder that the scheme has fallen flat and results in an entire failure.

The attention of the trade is now turned towards America, and considerable interest is felt as to the success of the tripartite scheme. If that scheme should follow in the wake of the Campion plan of 1884, we shall hear little more of similar schemes here. It is most fervently to be hoped that a united effort, however, will enable the trade to pull together on the subject and win a victory on your side of the Atlantic which will be more than half the battle on this. The unsatisfactory state of the present condition is universally admitted, and there seems no middle choice between a well-regulated scheme retaining these proprietary articles in their legitimate channels at remunerative prices, and their being utterly abandoned and depreciated on every occasion by those whom the public naturally expect to stock them. It is much too late in the day to indulge in mutual recriminations as to the folly of pharmacists in having introduced competitors into their own business.

The recent extension of the rebate system, regarding alcoholic preparations exported abroad, to perfumery has raised the hopes of some manufacturers that the day is not far off when tax-free alcohol will be permitted in all arts and manufactures. It seems sad to dampen the ardor of these enthusiasts who imagine that such a permission would be an unmixed blessing. Both in your editorial columns and in those of the *British and Colonial Druggist* it has been pointed out simultaneously that the proposition would not be altogether advantageous to the pharmacist. Here we have a duty of $2.52 per proof gallon on all alcohol, permission to use the methylated or duty-free alcohol only having been granted to four B. P. preparations, viz., the liniments of aconite, belladonna, compound camphor, and soap. It is, of course, only fair that tinctures and spirits, etc., which are for use abroad should be allowed their rebate in alcohol duty, and the extension of the concession might fairly be made to all preparations whatsoever that contain the taxed alcohol, instead of a limited number only as now permitted. But the introduction of pure spirit for medicinal preparations, free from duty, would inevitably react unfavorably to the pharmacists. The penalty which wholesalers pay now for the privilege of making these tax-free preparations is a license of $50 per annum and the constant supervision of the excise officers. This supervision would be extended to the pharmacist who might wish to make his own tinctures, etc., and would soon be found to be irksome. The trade is already overpowered by the attentions and solicitude of a too paternal government. There is, however, little chance of this extension of free alcohol here beyond the direction of exported articles, and which is only conceded on that ground, and is surrounded by restrictions and conditions especially indicating that the Revenue has no intention of allowing these articles to be consumed or sold here.

We are having a recurrence of influenza, and the trade has in consequence been more brisk. A suggestion that may be of some value is made by Sir J. Sawyer, M.D., that if persons would drop a few drops of carbolic acid on the handkerchief every day and vigorously use the same, there would be far fewer cases of the malady. Many chemists here have utilized the idea in the form of carbolic smelling salts, eucalyptus smelling salts, and camphor phénique pungents, etc. Perhaps a perfumed carbolic acid, as carbolized eau-de-cologne, may yet become popular. A small menthol inhaler for nasal inhalation is wonderfully useful to clear the head in the stuffy cold stage of "la grippe." The chief remedies used here are, during the inflammatory stage, aconite, acetate of ammonia, and antipyrine or antifebrin. This is followed by quinine, strychnine, and tonics generally, whilst if there is much muscular pain salicylate of sodium is added.

Dr. Lander Brunton, F.R.S., in a recent address has given several amusing instances of errors in diagnosis due to too hastily formed opinions. In one case he was among a class of students surrounding a man suffering from heart disease, when it was noticed that the pupil of one eye was much more dilated than the other. At once numerous more or less learned suggestions were made to account for the mydriasis, when the man informed them that the eye over which there had been so much animated debate was a glass one. Another instance related to a learned professor who used to boast that he could tell much concerning the medical history of

his patients by their teeth, and when holding forth on his favorite theory one day was considerably disconcerted by the patient taking them out, saying, "Perhaps the gentleman would like to look at them closer."

### London Market Report.

MINCING LANE, January 12th, 1892.

The chemical and drug markets are remarkably steady, although no considerable alterations in prices have been effected. There is particular firmness noticeable in chlorate of potash, sulphate of copper, and hyposulphite of soda, that have yielded slight advances. The announcement of the registration of the firm of Alex. Walker & Co.'s Alkali Works at Irvine, Scotland, as opponents to the Alkali Union, has not affected the syndicate. The new works are stated to cover 25 acres, and include sheds for caustic, bleaching powder, and sulphuric acid chambers.

In drugs there has been a fair demand and general steadiness. The auctions last week were very heavy, but many lots were bought in. In spite of good supplies ipecacuanha advanced and ergot is also again higher. Latest Smyrna advices indicate a hardened market, sales of over 450 cases being reported in the month. Prices range from 1.82 to 2.04 F. O. B.

The following are current prices:

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|---|---|---|---|---|---|
| Acid, Citric | per lb., | $0.33 | Jalap | per lb., | $0.40 |
| Ammon. Carbonate | " | .06 | Mercury | " | .40 |
| Anise, Star | " | .22 | Calomel | " | .66 |
| Balsam Copaiba | " | .46 | Corrosive Sublimate | " | .58 |
| Peru | " | 1.14 | Oil, Aniseed | " | 1.52 |
| Bleaching Powder | " | .02 | Cajuput | " | .80 |
| Buchu Leaves | " | .10 | Cassia | " | .84 |
| Camphor, refined | " | .35 | Cinnamon | " | .32 |
| Cascarilla Bark | " | .06 | Peppermint H.G.H | " | 3.12 |
| Copper Sulphate | per cwt., | 3.46 | Potash, Chlorate | " | .11 |
| Cubebs | per lb., | .33 | Quinine, Sulphate | per oz, | .19 |
| Cyanide of Potash | " | .45 | Sarsaparilla | per lb., | .30 |
| Ergot, Spanish | " | .68 | Senega Root | " | .38 |
| Gum, Myrrh | " | .34 | Shellac | " | .21 |
| Ipecacuanha | " | 1.92 | Soda, Bicarb | per cwt., | 1.72 |
| Carthagena | " | 1.52 | Caustic | " | 2.30 |

### CHICAGO.

EMIL LIEBRECHT has opened a new store at 368 Fullerton avenue, which he has named the National Pharmacy.

REINHOLD WALDIN has disposed of his store at 4101 State street to A. Thies & Co.

BUCK & RAYNER have disposed of their Clark street store to James Thompson.

The firm will soon branch into wholesaling and jobbing, a part of the premises at 221 Randolph street having been rented for this purpose.

MONTGOMERY'S Pharmacy, at 209 26th street, is now owned by MONTGOMERY & KASPER.

The R. W. MCCREADY CORK CO. was recently incorporated with a capital stock of $100,000, the interested parties being R. W., E. W., and J. S. McCready.

The PHARMACAL SPECIALTY COMPANY has been incorporated with a capital stock of $15,000 by L. M. Miller, L. C. Ehle, and F. A. Miller.

The CHASE COMPANY has been incorporated with a capital stock of $40,000 to manufacture patent medicines, the incorporators being Bailey Martin, Pomeroy Smith, and Wesley Briggs.

J. L. SMITH & Co. have opened a new store at Centre and Dayton streets, and J. C. A. JACOBS has established one at the corner of 69th street and Stewart avenue.

The entire plant of MURRAY & NICKELL, the drug millers, was recently destroyed by fire.

DR. J. L. T. DAVIDSON, of Colorado, a graduate of the Chicago College of Pharmacy, is at present in the city, pursuing a post-graduate course in medicine.

The junior class of the Chicago College of Pharmacy have formed an organization numbering about fifty members of the class, the same to hold weekly meetings for the purpose of reading and discussing essays upon some pharmaceutical subject. The first regular meeting was held January 19th, at which a paper was read by Mr. Kaplansky, the subject being "Solutions." Attentive interest was shown by those present, which speaks quite flatteringly for the class. Ross E. Smith is president of the organization; Lycurgus Stockton, vice-president; James R. Cady, secretary; David Kaplansky, treasurer; and Ernest H. Stolk, quiz master.

### NEW ENGLAND.

THE Tripartite Committee recommends the adoption of the following details for the execution of the A. P. A. plan, when twenty proprietors have signified their willingness to adopt them, and when a majority of the retail druggists of the United States have signified their acceptance of its provisions by returning one of the enclosed copies of the plan with their approval and signature.

*This memorandum of agreement or pledge* is to be signed and returned to ——, when you will be thereby constituted an authorized agent for the several manufacturers and proprietors named on the back hereof.

The undersigned, in consideration of having been appointed a retail agent for the several manufacturers and proprietors whose names appear on the back hereof, and in consideration of the regular trade discounts, rebates, or allowances to be granted on purchase of goods manufactured by said proprietors by reason of the acceptance of such agency and the stipulations herein contained, does hereby *faithfully pledge and agree* that none of the medicines or other preparations manufactured or controlled by said proprietors shall at any time be sold or disposed of by the undersigned, or by any one acting for the undersigned, by the single bottle, box, or package at *a greater or less price* than that fixed or established for them by the several manufacturers and proprietors thereof, and generally printed upon their wrappers or labels.

Furthermore, the undersigned agrees that no greater discount or other allowance than one-sixth of the full retail price will be made or given on quantities of quarter-dozen or more delivered at one time.

It is further agreed that none of the preparations manufactured by said proprietors shall be sold to any one whose name is on the cut-off list of any of the manufacturers and proprietors whose names appear on the back hereof, excepting at full retail prices.

If the foregoing agreement is at any time wilfully violated by the undersigned, or by any representative of the undersigned, the said manufacturers, or any one of them, may, either directly or through their several wholesale agents, or other representatives, withdraw or cancel this agency and refuse longer to allow trade discounts to the undersigned on purchase of their goods.

(Sign here).....

.....

Dated.....1892.

The Committee unanimously adopted the following resolution:

*Resolved*, That while we believe the retail trade should adhere to the agreement in regard to "substitution," as contained in condition "3" of the plan adopted by the A. P. A., this Committee does not consider it wise to recommend the insertion of the substitution clause in the contract.

The above resolution also applies to the substitution clause in condition "2."

From record of meeting of Tripartite Committee, held in New York City 20th inst., *all* the members present in person.

An opportunity will be given in the near future, by circular letter, to the retail druggists of the United States to express their wishes for or against this measure.

Yours truly, HENRY CANNING.

BOSTON, January 22d, 1892.

**The Boston Druggists' Association** had its annual meeting and dinner on the 26th of January, the large dining-room of Young's Hotel being comfortably filled.

At a business session before the company sat down to the tables these officers were elected for the year 1892:

President, Charles A. West; treasurer, Thomas L. Jenks; secretary, James O. Jordan; executive committee, Frank A. Davidson, William F. Horton, Francis Hollis, Harvey S. Sears, Charles A. Kilham, William A. Chapin, and George W. Cobb; committee on membership, Reuben L. Richardson, George H. Ingraham, Alfred H. Bartlett, Josiah Bryant, and Frank W. Shackley.

Mr. A. K. Tilden, the retiring president, was at the head of the table, and about him were seated many prominent members of the association, including Senator Gorham D. Gilman, Alderman Rust, and ex-Alderman Stacy, and the invited guests, Hon. George A. Marden, Hon. Charles F. Thompson, Hon. Alfred S. Pinkerton, Gen. Charles H. Taylor, President Henry Whitney of the State Board of Registration in Pharmacy, and Prof. James F. Babcock.

President Pinkerton, of the State Senate, the first speaker, started with his quotations from a stone in a country graveyard: "I expected this, but not so soon." The laugh that followed told the speaker that he had gained his hearers' attention, and he proceeded to eulogize the commonwealth of Massachusetts.

Mr. Pinkerton pictured the small part in legislation taken by business men, and urged the sending of more of them as members to the General Court, and also the attendance at committee hearings of business men who know the needs of the interests represented by them.

Alderman Rust received a warm welcome as he rose to speak for the city. He said he had hoped that the mayor would be at the dinner to talk about what he was all the time trying to teach the heads of the departments. "But, after all," he exclaimed, "the Lord knows that no druggist need to be taught economy."

"Keep out of the courts, keep out of the law," was the facetious advice of Judge Thompson, who added that going into court was very much like being sick—the patients did not get much out of it, even if they won.

Referring to the laws that had been passed regulating the business, he said a man did not run so much risk in being sick now that he once did.

An original poem, entitled "The Sons of Hippocrates," was read by Mr. Henry O'Meara and was well received.

The next speaker, Gen. Charles H. Taylor, paid a high compliment to the care and skill of the profession.

Treasurer Marden told a number of funny stories, and praised his hosts without stint.

The president of the State Board of Registration in Pharmacy then spoke on the work of the Board, which had issued over 3,000 certificates and examined or re-examined 1,400 candidates, 860 of whom were rejected.

Prof. James F. Babcock closed the evening's exercises with an original poem.

## GENERAL.

MR. ADAM REEG and MR. J. H. WIGGIN will soon open a new drug store in Portsmouth, O.

ROBINSON & CO., the popular druggists of Ironton, O., will open, previous to March 1st, a new drug store in that place which will be one of the finest and most commodious in the city; it will bear the title of the Lucas Drug Co.

Under the title of the "Fountain Drug Store," Messrs. Thornberger & Watts have reconstructed an old store within the past few weeks. It now, in its new quarters, presents a tasty appearance, and evidently means business.

MESSRS. ADAMS & DAVIS have succeeded J. D. Ross & Co.'s Main street pharmacy, Zanesville, O., and will soon put it in first-class condition. It is an excellent location, and with two such enterprising men at the head success is assured.

D. W. BAKER took possession, January 1st, of the Home Pharmacy, corner Long street and Jefferson avenue, Columbus, and proposes to make things a little lively in that neighborhood.

THE MEDICATED AIR AND DRUG COMPANY is a comparatively new drug store in Richmond, Ind. They mostly do a proprietary medicine business in their own preparations.

It is sometimes a source of wonder to the uninitiated to what purpose the large amount of glucose is put, and probably few druggists are aware of the enormous productions in the West of this article. Recently I was seated at a hotel table opposite a prominent manufacturer of it, and was much interested in a conversation in which he was narrating to a friend something of the process of manufacturing, and the substitution, of late years, of hydrochloric acid for sulphuric, making a more *healthful* product, as claimed. What interested me most was his intimation as to the use made of it. Among other things he said he sold a prominent manufacturer of extract of licorice 1,000 barrels a year. Large quantities are shipped to New Orleans and come back in the shape of fancy syrups. Jellies absorb large amounts. Confectioners take kindly to it. Quite a number of manufacturers of proprietary medicines find it handy in their business. Certain kinds of leather are worked with it, in a secret process of manufacturing or finishing, and, in fact, there are few things in which sugar is used that does not find some one working in glucose as an adulterant to cheapen price and put a few more dollars in the pockets of the users. Oleomargarin is not in it with glucose, but the farmers are not interested, and the pharmacists have little interest, it would seem, with our law-makers.

## THE WORLD'S CONGRESS AUXILIARY OF THE WORLD'S COLUMBIAN EXPOSITION.

### PRELIMINARY ADDRESS OF THE PHARMACEUTICAL COMMITTEE.

THE plan for the Columbian commemoration of 1893 includes not only a display of the material products of man's power and activity, the magnitude of which will surpass any hitherto witnessed, but it proposes, further, to take advantage of that auspicious occasion to bring together, in separate congresses, the workers of the world in each of the diverse fields of human progress. The World's Columbian Exposition will, therefore, be notable no less for the concourse of men and minds than for the greatness of the world's industrial exhibits and their impetus to still greater achievements.

The World's Columbian Exposition, with the approval of the Government of the United States, has created a World's Congress Auxiliary, which is charged with the duty of promoting the holding of world's congresses of specialists in the fields of science, art, literature, education, and other provinces of the domain of human thought and civilization. Thus there will be congresses of chemists, botanists, physicians, sanitarians, lawyers, political economists, financiers, electricians, architects, librarians, etc., etc. Many of these gatherings have been definitely decided upon, and the necessary preliminaries to facilitate their sessions are being arranged.

The Directory of the World's Columbian Exposition has undertaken to provide suitable places of meeting for the several World's Congresses which are to be held, and the grand Memorial Art Palace which is to be erected on the shore of Lake Michigan, and which will have two great audience rooms for large conventions, and a number of smaller halls and rooms, will be at the disposal of the World's Congress Auxiliary during the season of the Exposition. Any additional places of meeting required for World's Congress purposes will doubtless be provided.

It is proposed to so arrange the dates for the respective meetings that those nearly related in interest shall take place in immediate succession as far as practicable.

The work of the Auxiliary has been allotted and assigned to appropriate general and special committees whose members are resident in or near Chicago.

It has become evident that thousands of pharmacists will visit the Exposition, including a large number from foreign countries, and that important pharmaceutical bodies will hold their meetings in Chicago in 1893. In order that the proposed pharmaceutical meetings may take place under the most favorable conditions, the World's Congress Auxiliary has appointed a Pharmaceutical Committee through which it will extend to the pharmacists of the world the same facilities and services which are tendered to all other congresses to be held during the Exposition season.

It is understood that the American Pharmaceutical Association and the Illinois State Pharmaceutical Associa-

tion will meet in Chicago in 1893. The Auxiliary also invites all the other State pharmaceutical associations and the State boards of pharmacy of the United States to hold their meetings here next year, and, as each State will have its own building on the World's Fair grounds, it is suggested that the State organizations might prefer to meet in the buildings of their respective States.

It is further suggested that teaching colleges and schools of pharmacy may desire to hold a conference through their representatives at the same time and place.

It is believed that the Seventh International Pharmaceutical Congress will be convened at Chicago during the season of the Columbian Exposition. As many distinguished visitors from other lands will doubtless be attracted by the Exposition itself, the time and place are eminently favorable. An invitation has been formally extended by the American Pharmaceutical Association to the International Pharmaceutical Congress to meet here, and the World's Congress Auxiliary will be pleased to facilitate the preparations for its meeting.

The World's Congress Auxiliary having invited the American Pharmaceutical Association to co-operate with it in its work, the Association accepted the "invitation to co-operate in the work of preparing for an International Pharmaceutical Congress at Chicago in 1893," and "for that purpose appointed the following committee: Oscar Oldberg, chairman; E. H. Sargent, Albert E. Ebert, D. R. Dyche, L. C. Hogan, C. S. Hallberg, and the president and permanent secretary of the Association *ex-officio*."

Should the International Pharmaceutical Congress be called to meet at Chicago in 1893, as now seems quite probable, the precedents established by its predecessors will doubtless be followed in regard to all preliminaries.

Aside from special meetings of pharmacists and pharmaceutical bodies such as indicated in the foregoing, the Auxiliary proposes a general Columbian World's Congress of Pharmacists, in which all the participants in the other pharmaceutical meetings may come together. To this World's Congress of Pharmacists are hereby invited all practitioners of pharmacy, pharmaceutical teachers, authors, and journalists, members of pharmaceutical societies and examining boards, and of pharmacopœial committees, manufacturing pharmacists and chemists, and others connected with the art of pharmacy. Pharmaceutical societies, schools, and examining boards, pharmacopœial committees, and other organized pharmaceutical bodies are specially requested to send representatives. The objects of the Columbian World's Congress of Pharmacists are the delivery of addresses upon topics of general pharmaceutical interest, the reading of papers upon pharmaceutical questions of a general scope, discussion upon such questions, and mutual acquaintance and intercourse.

The pharmaceutical meetings are to be so arranged as to take place between the several medical and allied scientific congresses, so that pharmacists who may be specialists in chemistry, botany, microscopy, etc., may participate in two or more of the congresses held.

In the arrangement of the preliminaries the Pharmaceutical Committee of the World's Congress Auxiliary will be governed, so far as possible, by the suggestions of those most interested in the success of the respective meetings. The committee, therefore, hereby asks the advice and co-operation of pharmaceutical societies, schools, examining boards, and other organized bodies of pharmacists, foreign and American. This committee also solicits the counsel and suggestions of individual pharmacists at home and abroad. As a means to this end, the World's Congress Auxiliary has established an Advisory Pharmaceutical Council of a limited number of distinguished pharmacists of various countries. A list of American pharmacists who have already accepted invitations to act as members of the Pharmaceutical Advisory Council of the World's Congress Auxiliary is appended to this preliminary address. A full list will be published as soon as the membership, both foreign and American, shall have been completed.

The points upon which the views and proposals of prospective participants in the pharmaceutical meetings are specially solicited are embodied in the following programme, which this Committee proposes, by way of preliminary suggestion, and mainly for the purpose of eliciting proposals of direct and specific amendments or definite substitutes.

This Committee proposes:

1. That a World's Congress of Pharmacists be held in Chicago, in the month of May or June, 1893, the exact date to be announced hereafter.

2. That all who are interested in the art of pharmacy, whether as practitioners, teachers, writers, members of pharmacopœial committees, or as journalists, or in any other professional capacity, may participate in said Congress.

3. That the Congress hold two sessions daily during three days for the reading of addresses and papers, discussion, and such other business as it may deem appropriate.

4. That addresses and papers be invited upon important topics of general pharmaceutical interest, as, for example, historical accounts of notable epochs in the progress of the art of pharmacy; the general subject of pharmaceutical education, or that of the regulation of the practice of pharmacy by law; the ethics of the practice of pharmacy, and the relation of pharmacists to the public; pharmacy at the time of Columbus; the present status of the art of pharmacy, and the apparent tendencies as to its future development; the pharmacopœias of the present; the character and scope of an ideal pharmacopœia, etc. Many other topics might be suggested as suitable, but those here enumerated are given purely by way of tentative suggestion.

5. This Committee proposes to call to its aid a suitable number of the members of the Advisory Council to act as a Committee on Addresses and Papers.

6. The Committee further suggests that the American Pharmaceutical Association, a conference of pharmaceutical examining boards, a conference of pharmaceutical schools, and the annual meetings of the State pharmaceutical associations may be held before or after the Columbian World's Congress of Pharmacists, and that the Seventh International Pharmaceutical Congress, if called to meet in Chicago, may also hold its sessions at about the same time. This arrangement will enable foreign and American pharmacists who come to visit the great Exposition, or as delegates to the proposed International Pharmaceutical Congress, or to attend any of the pharmaceutical meetings mentioned, to participate also in the Columbian World's Congress of Pharmacists.

A further announcement will be made after sufficient time for suggestions and proposals. Correspondents, both foreign and American, are respectfully requested to freely communicate with this Committee at their earliest convenience, in order that the Committee may be governed by the best advice received, and may so perform its functions that the Congress itself may without difficulty or waste of time enter upon its proceedings.

Individuals as well as societies and other organized bodies of pharmacists who intend to participate in the Columbian World's Congress of Pharmacists or in other proposed pharmaceutical meetings in Chicago during the season of the World's Columbian Exposition, and those who may be disposed to contribute papers suitable to be read before the Congress, are requested to inform the chairman of this Committee, to whom all proposals, papers, and letters of inquiry should be addressed, in care of the World's Congress Auxiliary of the World's Columbian Exposition.

## EXHIBITION NEWS.

Japan has appropriated $630,765 for its representation at the Exposition. A splendid Japanese exhibit is assured.

Chew Yu Ling, representing commercial parties in China, has arranged to conduct a tea pavilion on Midway Plaisance, and has applied for 1,000 square feet of space in the Manufactures Building in which to exhibit Chinese silks, embroideries, etc.

A collective exhibit of sanitary appliances and methods of sanitation, and of all that pertains closely to them, is to be made at the Exposition. The various State and municipal boards of health will work in conjunction to that end, numerous representatives of those organizations having so decided at a recent convention in Chicago.